IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
WACO DIVISION

VLSI TECHNOLOGY LLC *
*
VS. * CIVIL ACTION NO. W-21-CV-57
*
INTEL CORPORATION * February 23, 2021

BEFORE THE HONORABLE ALAN D ALBRIGHT, JUDGE PRESIDING
JURY TRIAL PROCEEDINGS
VOLUME 2 OF 7

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08:31 (February 23, 2021, 8:31 a.m.)

THE COURT: Mr. Lee?

MR. LEE: Yes, Your Honor. If we could get Your Honor's guidance, it'll make things move faster this third, fourth and fifth days.

THE COURT: We can't hear you with your mask on.

MR. LEE: I'm sorry. I said I think, Your Honor, if we get your guidance, this will help for the third, fourth and fifth days and resolve some disputes.

So by category, Your Honor, for the things that we object to that we'd like to have resolved before Dr. Conte takes the stand -- there are a couple that relate to Dr. Sullivan that could wait till tomorrow. But first --

THE COURT: Mr. Lee, let me interrupt you and ask you first, would you feel comfortable talking at the podium not wearing a face mask?

MR. LEE: Sure, if it helps.

THE COURT: It helps.

MR. LEE: Better?

THE COURT: Much. And let me say for everyone, in my last trials the person speaking at the podium didn't wear a mask and the sound was dramatically better.

MR. LEE: I'm good with that. And I kept yesterday during the opening trying to poke myself in the face.

So, Your Honor, there are a few categories of documents

that we'd like your guidance on.

THE COURT: Okay.

MR. LEE: The first is, there are these what they call 1006 exhibits that are PTX-4418 and PTX-4419. And, Your Honor, those are claim charts which Your Honor knows from your private practice days with just tons and tons of citations to depositions. And it's basically an information dumped in the form of a 1006 exhibit.

If Dr. Conte's going to put in his testimony that describes what he says demonstrates infringement, that's what should go in. These are not 1006 exhibits in the classic sense. But more importantly, and this is the reason I've objected to these in other cases, you get up on appeal and someone says, oh, there's substantial evidence. And they point to these claim charts that are 600 pages long, and say, oh, it's in there at Page 483.

And for the same reason that Your Honor wants to ensure that we don't, you know, have a list of exhibits and then suggest they're admitted without anybody ever referring to them, this is the same thing. So they're not 1006 exhibits. They were given to us like on February 2nd, but they're claim charts.

And they shouldn't come into evidence for a whole host of reasons. There are evidentiary reasons. There's hearsay, there's testimony, there's things in there that are irrelevant.

But mostly it's an information dump that's going to just create a mess. I think on JMOL for Your Honor, and it's going to create a mess on appeal.

Second -- let me lay out the three or four categories and then yield the podium.

THE COURT: Okay.

MR. LEE: Second category is, in Dr. Conte and Dr. Annavaram's demonstratives, they have deposition excerpts, but they're excerpts that are not are being designated to be played to the jury. And I think Your Honor has indicated that if it's going to be something that goes to the jury, it needs to be designated and counter-designated. And just flashing up portions of a deposition without any chance to play the testimony or the counter-designate is -- it's not inappropriate use of deposition, it's hearsay.

Third category --

THE COURT: Let me stop you there.

MR. LEE: Okay.

THE COURT: If I understand what you're saying, I agree with you. And what I mean by that is, if an expert is going to rely on deposition testimony -- whatever he was going to rely on, whether it's something someone said in the courtroom that we all heard, or he's going to say that X -- Joe Smith said this in his deposition, that testimony is going to have to be put into the record during the course of the trial, or I agree

with you, it is hearsay.

So unless VLSI is planning to do something other than what you just said, they -- before their experts or your expert -- before any expert can rely on -- now, it can -- I'm okay with it coming in later.

For example, what I mean is, you know, I anticipate someone will say this if there's an order problem in terms of who said -- you know, there's -- if it's easier to play the deposition testimony later, I'm okay with it being out of order. But experts will only be able to rely on deposition testimony that the jury actually hears and is actually in the record.

MR. LEE: Okay. We agree. And we understand that if someone represents that Dr. Conte's going to rely upon this excerpt but they plan to play the excerpt later, we understand that completely. And I think we agree that that's inappropriate.

I don't know if Your Honor wants anything further on the first, on the claim charts.

THE COURT: Well, I think what I'm going to do on the claim charts -- and I don't think I need to hear from VLSI unless they need to be heard. I think they'll be okay with what I'm saying. What would be helpful to me is when the witness -- is the next witness -- is this going to come up with the next witness?

08:37 MR. LEE: I think it's going to come up one witness later.

08:37 THE COURT: Okay.

08:37 MR. LEE: But it will come up this morning -- may come up this morning.

08:37 THE COURT: So I think what we should try to do, if we can, is -- it may be too complicated -- I'm happy, when that issue comes up, to take a short recess. And I'll see what VLSI actually wants to do with that record, with their witness. And when I see what they're attempting to do, I will rule on whether or not that's -- I'm not going to do it -- I appreciate the heads up. That's helpful.

08:37 I want to actually see how VLSI is going to use it, and then we'll bring the jury back. I'll rule one way or the other, but I'll know in the context of what they're doing.

08:37 MR. LEE: Fair enough. I just -- if I got up on my feet, I wanted you to know why.

08:37 THE COURT: No, no. And if -- and it probably will be easier for me to excuse the jury for a short period of time and make sure I fully understand what VLSI wants to do and what your objection to it is, so I can have a ruling that makes sense.

08:38 MR. LEE: There are two other -- there's another category which is they just have a random quote from Steve Jobs from Apple about -- not attributable to any source -- about what Intel needed to do. It's hearsay. It has no foundation.

08:38 There's plenty for them to make their arguments based upon what Intel says, but having a random quote from someone who is neither here nor alive any longer --

THE COURT: If and when VLSI attempts to get that in, just like any other question, you can object that it's hearsay and I'll understand. I'll listen in the context of the question.

MR. LEE: Okay. And the last category for today, there are a couple of categories of documents for Dr. Sullivan, but my bet is that'll be tomorrow. And they all fall in the same category. They're voluminous financial records with lots of information that are irrelevant to this case and subject to Your Honor's in limine motion. And how we deal with them is the issue.

But Dr. Conte and Dr. Sullivan both take expert reports from the Delaware case, which Your Honor's familiar with, and they want to play -- they want to basically show excerpts from experts on the patents in the Delaware case who are not involved here to prove points here.

So it's not even, in some cases, a deposition. It's an expert report provided to the Delaware court for a patent in a Delaware court on an expert who's not going to appear here. And they want to put that up on the screen, and it's hearsay 100 percent, for sure.

THE COURT: Let me ask Mr. Chu or whoever, who will be handling Dr. Ryan?

08:39 MR. HEINRICH: Good morning, Your Honor. Alan Heinrich. I'll be directing Professor Conte. And then Amy Proctor will be directing Dr. Ryan.

08:40 THE COURT: Okay. So when Ms. Proctor is putting Dr. Ryan on, do you have an estimate -- this is just -- it could be totally wrong and I won't -- do you have an estimate of about how long Dr. Ryan -- Dr. Sullivan's going to be on the witness stand?

08:40 MR. HEINRICH: I'd say around an hour and a half to an hour and 45 minutes.

08:40 THE COURT: I was thinking an hour. That makes sense. Do you have an idea of where in his testimony this would come up?

08:40 MR. HEINRICH: I'd say probably towards the middle.

08:40 THE COURT: Okay. So what we'll do is, if we can, I'll figure out a way where after about an -- get to the point with Dr. Ryan -- Dr. Sullivan where this is an issue that's going to come up, and just, you know, ask if we could take a short break. I'll give the jury -- we'll recess. I'll hear what it is Dr. Sullivan wants to rely on and why Intel objects to it, and then we'll bring the jury back in.

08:41 MR. LEE: Right. That probably -- we can deal with all three categories of Dr. Sullivan, which is reliance on other expert reports, reliance on other litigation -- which I think is subject to Your Honor's limine motion -- ruling, I'm sorry -- and then just how we're going to deal with all of the

numbers that are irrelevant. I understand that there's some numbers in the public filings that are relevant, but there are some that are not.

THE COURT: Well, let me amend what I just said then. Let's do it this way.

Even if it seems odd that a jury, depending on where -- how long we've gone and, you know, all that, let's take it up before Dr. Sullivan gets on, right when he's about to get on the witness stand. I'll take it up in the context of what he's -- each of his issues, and then we'll bring the jury back in.

MR. HEINRICH: Thank you, Your Honor.

THE COURT: So I'll have Ms. Proctor, can you give me an idea of what she's going to ask, a question or two. You can tell me why she should not be allowed to do that. I can make my ruling, and then we can -- and then I have no problem with -- but I'll know one way or the other -- but then I'll have no problem during the direct examination of you objecting and saying something on the e-mail on the basis we've previously -- you will -- I think I preserved your --

MR. LEE: No, no. This is exactly the guidance we asked for. And I understand we couldn't deal with these sort of all at once.

THE COURT: Right.

MR. LEE: But just to alert Your Honor to what the

categories of the issues are, and then I think the best thing to do is address them as they come up.

THE COURT: Well, we can do that with Dr. Sullivan.

Is there anything else, Mr. Lee, on behalf of your client?

MR. LEE: No, Your Honor, other than to respond to -- there are a few of -- the things that they're going to raise separately. But I'll let them raise them with Your Honor first.

THE COURT: Got you.

And for VLSI?

MR. HEINRICH: Good morning. I'm happy to talk without the mask on. That's much better. And is it okay to examine witnesses --

THE COURT: Yes. That's what I mean, yes.

MR. HEINRICH: Fabulous.

So just addressing what Mr. Lee raised, first for the FRE 1006 charts, we do think that the charts that are Exhibits 4418 and 4419 meet the conditions for 1006 charts. They are summaries --

THE COURT: I'm going to take that up when --

MR. HEINRICH: Okay.

THE COURT: I'm pushing that off until --

MR. HEINRICH: Okay. I would -- okay.

THE COURT: I haven't -- I am intentionally not ruling on it right now. It's been raised. I understand what the issue

is. But right before that witness, we're going to take a break. You're going to give me a concrete example of how -- with the witness, how you'd like to use them. Mr. Lee or whoever on his side can object and explain why he doesn't want you to. And I'll make my ruling, and then we'll proceed with the jury.

MR. HEINRICH: Thank you. So with respect to excerpts of deposition testimony, just a little bit of background.

All of this deposition testimony was cited in Professor Conte's report. And he relied on the deposition testimony for the evidence for the support that he'll be presenting to the jury.

We thought that presenting the testimony in this way would be easier for the jury to fit it into the issues here. They can certainly --

THE COURT: I understand, but it needs to be put into evidence.

MR. HEINRICH: Okay. So all of this testimony --

THE COURT: All of the testimony that anyone is going to rely on has to be put in, because whatever snippet you want to use of a deposition, Mr. Lee and his team may feel like they need to cross-designate some other portion from a deposition.

Also in terms of time, I'm intentionally making you all decide whether or not you want to use -- you or Intel wants to use some of your time to put in this testimony. But I want the

jury to hear the testimony that any experts rely on.

MR. HEINRICH: Okay. So all of the testimony that Dr. Conte was going to show on slides was designated as part of the pretrial deposition designation process. We weren't planning on showing it all, but we now will show everything that will be on the slides.

THE COURT: Right.

MR. HEINRICH: And I think -- I think that's the only other issue with Professor Conte.

THE COURT: Mr. Lee?

MR. LEE: The one other thing we just wanted to raise to get Your Honor's guidance is there are a lot of demonstratives that, like, have just, like, a whole list of exhibits on the left-hand side. And I know, Your Honor, you have -- the guidance you have offered us is that we will, if the witness refers to an exhibit, then it goes in.

THE COURT: No. No. If I said that -- if I did say that, I was in error.

If you offer a witness an exhibit, an exhibit, and the other side doesn't object, I'm considering it's in. The fact that there's a list somewhere that someone may reference, that doesn't mean any of those exhibits can come into evidence.

It's only if -- I'm just -- I'm just trying to make it so you don't -- we don't have to do the two-step of: I move for admission, no objection; move for admission, no objection.

If you know you're not going to object, I'm fine with you all just using them and then, you know, and then in listening, if there is an objection, I can rule on it.

MR. LEE: That was our mistake. I was concerned about, you know, Items 2 through 50 that are not mentioned at all in the testimony. They're not coming in.

THE COURT: They are not coming in.

MR. LEE: Thank you, Your Honor.

THE COURT: They're not coming in unless someone actually physically uses them during the trial --

MR. LEE: Thank you, Your Honor.

THE COURT: -- without objection.

MR. HEINRICH: And just to be clear, we don't have slides with a long list of exhibits. But I -- if I could get your guidance.

What we do have is we have some slides with exhibit numbers. I'm planning to ask the witness what these exhibits are. Almost all of them are not even objected to. So in the context of that slide, the witness is going to explain what the exhibit is, and then we'll explain the pertinence of the -- the subject matter on the slide.

THE COURT: If you talk about an exhibit in that instance, then it's going to be admitted.

MR. HEINRICH: Thank you.

THE COURT: And that -- it will go -- and it will go back

to the jury because it will have been admitted then.

MR. HEINRICH: Great. Okay. Thank you very much.

THE COURT: If you talk about an exhibit -- then you can't talk about an exhibit unless it has been admitted. If your witness is talking about it and the other side doesn't object, I'm going to assume they didn't have an objection, and it's now in evidence.

MR. HEINRICH: Very good. We do have some objections with respect to cross exhibits that they've disclosed to us. I don't know if you'd like to hear that now, or should we do that as they come in?

THE COURT: Unless there's something in them, for example -- I'll try to be funny here -- if there's something that shows Mr. Lee has a criminal history he hasn't divulged before that he wouldn't want us to know about, then you probably ought to let me know now, and we can take them up outside.

If it's just a typical objection, like I've seen a thousand times, I'm happy when Mr. Lee or whomever on behalf of Intel moves to admit them, you can say: Your Honor, I object. And I'll rule on it.

MR. HEINRICH: So I do have one that fits into that category.

THE COURT: Well, hopefully not that Mr. Lee --

MR. LEE: Yeah. I was going to -- if it's going to be my

criminal record, we'd ask to seal the proceedings. I think it's --

(Laughter.)

MR. HEINRICH: Well, I'd say prejudicial in a sort of an over-the-top way. It's Defendant's Exhibit 870 that shows Professor Conte in a fancy sports car.

MR. LEE: Oh, I think we sent them an e-mail this morning saying we're withdrawing those.

MR. HEINRICH: Thank you very much.

THE COURT: Okay. Lots of folks in Waco have fancy sports car. I'm sure none of them would be bothered by that at all.

So is there anything else we need to take up?

MR. LEE: Not for Intel, Your Honor.

MR. HEINRICH: Not for VLSI.

THE COURT: Okay. Good.

So I'll make sure the jury's here. If the jury is all here, do you all have any -- never mind. I was going to -- I was overruled. Kristie knew I was going to say we could start a little early. We're not going to start a little early. Kristie has to take care of a couple things.

We will start at 9:00, and you can absolutely feel free to not stay in the courtroom if you don't want to stay in the courtroom. I'm -- as long as you're here when we are ready to go at 9:00, I'm perfectly fine with that.

THE BAILIFF: All rise.

08:50 (Recess taken from 8:50 to 9:03.)

09:03 THE BAILIFF: All rise.

09:03 (The jury entered the courtroom at 9:03.)

09:04 THE COURT: Thank you. You may be seated.

09:04 We need to swear the witness.

09:04 (The witness was sworn.)

09:04 MR. HATTENBACH: All right. Good morning. It's good to see you.

09:04 Good morning, ladies and gentlemen. My name is Ben Hattenbach, and I'm one of the people working with Mr. Chu and Mr. Mann from yesterday for VLSI, and I'm going to be presenting our next witness.

09:04 DIRECT EXAMINATION

09:04 BY MR. HATTENBACH:

09:04 Q. Good morning, Mr. Bearden. Could you please introduce yourself to the jury?

09:04 A. Yes. My name is David Bearden. I'm a fellow at NXP, and I'm one of the co-inventors of the '373 patent that I believe is involved in this case.

09:05 Q. And could you tell us a little bit --

09:05 (Reporter clarification.)

09:05 BY MR. HATTENBACH:

09:05 Q. Mr. Bearden, can you tell us a little bit about yourself personally?

09:05 A. Sure. I live in Austin with my wife and son. I've

always enjoyed my engineering career. There's always a good challenge that kind of keeps the mind stimulated, so that's always a good thing. In my spare time, and I'll say there's not a lot of spare time, but I enjoy scuba diving and astronomy. And in fact right now I'm trying to get a remote observatory set up in the hill country of Central Texas.

Q. And you work at NXP currently?

A. Yes. I do.

Q. And yesterday was a long day. Can you remind us, what is NXP?

A. Yes. NXP is one of the top ten semiconductor companies in the world, and their U.S. operations are headquartered in Austin.

Q. And can you give us a few examples of some of the types of products that NXP makes?

A. Sure. NXP makes a lot of different high-tech products. At their core, I'd say there's either a microprocessor or microcontroller. And they're used in many different applications, right, so anything from computer networking equipment all the way over to automobiles, right?

Then if you think about the automobile example, then you know it's used in many different things, helping the cars understand their environments, helping with human interactions in the vehicle, doing things like managing the electric batteries for, you know, the batteries for electric cars. And

then as well, if you think about the displays in today's modern cars, the big displays you see, it's actually our technology that is in many of those.

Q. And what type of work do you personally do at NXP?

A. So I'm a senior engineer. I do -- give technical guidance to the various NXP design programs. And in addition, I do problem-solving related to semiconductor design.

Q. And I want to talk a little bit about the work you did before joining NXP, but first, can you tell the jury a little bit about your educational background?

A. Sure. I have a bachelor's degree in electrical engineering from the University of Oklahoma, which I received in 1984. And then I have a masters degree in electrical engineering as well, which I received from the University of California at Berkeley in 1985.

Q. And what did you do after you received your masters degree?

A. So I actually started working for AT&T Bell Laboratories in 1984. And then I continued to work for them up until I think 1989, when I left AT&T Bell Labs and began working at Motorola.

Q. Why did you join Motorola?

A. Well, I wanted to be involved in leading edge microprocessor design, and Motorola had a campus in Austin and was doing that type of work there at the time.

They have a long history of innovation at Motorola, you know, thinking all the way back to, let's say, 1940, when they invented the first walkie-talkie, right? As well, if you look at other innovations that Motorola was involved in, things like the radio on the first mission to the moon, that was a Motorola radio, right?

And so they, again, have many decades of innovation and had started working in microchips, you know, building microprocessors and other things for things like cell phones and computers. And so when I had the chance to kind of join Motorola, it was pretty exciting.

Q. And what type of work did you do for Motorola?

A. Well, I worked my way up through the engineering ranks essentially working on various microprocessor designs.

I was involved with the first -- I'm not sure if people know this, but the old power PC microprocessors, right? This was the joint development between Apple and IBM that were used in the computers at both companies, both Apple and IBM.

And over the years, I kept working on more and more advanced microprocessors, you know, kind of for computer networking and again for things like automobiles and other things like that.

And as we were putting more and more things onto the processor, right, so multicore designs, or kind of taking other pieces of the system and kind of moving it onto that single

09:09 piece of silicon, you know, we were kind of struggling with
09:09 power, right? And so that began to get a lot of our attention.
09:09 Q. And how long were you with Motorola?
09:09 A. Well, I never -- I like to say I never really left
09:09 Motorola. I tend to think of the company as having changed
09:09 underneath me, if you will, right?
09:09 So I was with Motorola in the semiconductor product sector
09:09 probably until about, I'd say 2004, when in fact that product
09:10 sector, the semiconductor, was spun off of Motorola and became
09:10 Freescale. And Freescale operated as a standalone company for
09:10 many years, I think until about 2015 or something like that,
09:10 when in fact then Freescale merged with NXP, and I'm still with
09:10 NXP today.
09:10 Q. And where was Freescale based?
09:10 A. Freescale was based in Austin as well. Ever since I
09:10 joined Motorola in 1989, I've been based in Austin and, in
09:10 fact, still in the same building that I joined in.
09:10 Q. Can you tell us a little bit about Freescale's
09:10 business?
09:10 A. So Freescale continued to do essentially the -- you
09:10 know, continued the businesses, if you will, that Motorola had
09:10 started, right?
09:10 So they continued to do advancements in microprocessors
09:10 and microcontrollers used for a broad range of things, right?
09:10 So from, let's say, communications, aeronautics, automotive,

cell phones, you know, various things, you know, personal health, right? So a lot of markets that we are often designing computing systems for. So a lot of different things, again, designing and manufacturing these computing systems.

Q. Can you give the jury some specific examples of products that Freescale made?

A. Sure. Maybe a couple.

So, you know, I think two good references are maybe back in 2010, when I was at Freescale, 70 percent of the wireless calls went through a Freescale microprocessor. And if you think about the e-readers, right, so things like the Amazon Kindle, 75 percent of those used Freescale technology, right?

And so, again, there was a lot of other things that Freescale did developing microprocessors for, again, airplanes to cars sort of things.

Q. Did you personally work on any microprocessors at Freescale?

A. Yes. That was my main focus, essentially working on microprocessors that were always at the leading edge of the technology development, and again, you know, focused in on things from computing to networking and others.

Q. Now, in the work you've done on microprocessor design, has there been a particular emphasis or focus?

A. Probably two things that I would point out that we are focussed in on, or that I was personally focussed in on is

09:12 essentially, you know, two problems, either trying to figure out a way to reduce power or, you know, trying to figure out a way to improve speed or performance, right?

So if it's, you know, some circuit design issue that I was involved in trying to go through and, you know, solve a problem, those were the two things, reducing the power or increasing the speed.

Q. And why were you trying to reduce the amount of power used by the microprocessors you were developing?

A. So probably comes down to, let's say, several things, if you will, right?

So the first is just, you know, take an application that's maybe a mobile processor, right? You want the longest battery life, and so for that reason you need to reduce the power demand, right?

The other thing that, you know, probably you can appreciate is no one likes a hot laptop or a hot cell phone from the heat of the electronics, so reducing the power, allowing it to run cooler helps to go through and kind of improve the user experience, but it's also good from a reliability perspective of the part itself.

You know, another application is -- of saving power is that if you can afford a certain amount of power, and now you can go through and reduce that power, then in a sense what it allows you to do is to kind of either run the circuit faster

again or go off and add more circuits back in there. So there's benefits in terms of managing that power.

And last, I would probably say, you know, just the environmental characteristic of the thing, right, lower electric bill, less impact on the environment.

Q. Okay. You mentioned that you now work at NXP. Do you know whether NXP came to own the '373 patent that's sitting in front of you there on which you're an inventor?

A. Yes. When I -- when Freescale merged with NXP, then I went to work for NXP, and NXP came to acquire some of the Freescale patents, which included the '373 patent.

Q. And do you know whether NXP has an interest in this case?

A. So I understand that NXP has assigned the '373 patent to VLSI and that NXP does have an interest in any recovery that may come about by VLSI's efforts, right? I personally do not have any interest in the case, but if Intel is found to infringe, then NXP would benefit. And my understanding is that NXP would take any recoveries and go off and invest it in the next generation of design.

Q. Does the fact that NXP stands to benefit from your patents if VLSI prevails here have any impact at all on your testimony in this case?

A. No. I'm just here to answer the questions truthfully.

09:15 Q. All right. Have you personally done any work to try to determine whether Intel infringes your '373 patent?

09:15 A. No, I have not. And no one has asked me to do that work. In fact, I'm not even sure how I really would tackle that problem, as Intel keeps a lot of the design techniques of their processors secret, right?

09:15 Now, that being said, I do understand that as part of this litigation that Intel has been required to provide documents and other information about how exactly their processors work. And so that does exist, but I do not have access to that and have not seen it.

09:15 Q. All right.

09:15 MR. HATTENBACH: Mr. Simmons, if we could put up Exhibit PTX-4 on the screen.

09:15 BY MR. HATTENBACH:

09:15 Q. And we'll ask Mr. Bearden if he recognizes this document.

09:15 A. It's not quite up yet.

09:16 Q. It's not coming up yet. There we go.

09:16 A. And if you can't hear me, please wave at me again.

09:16 Q. I think we're good. So do you recognize this document, Mr. Bearden?

09:16 A. I still don't see it here yet.

09:16 Q. Oh. It's up on my screen.

09:16 MR. HATTENBACH: Maybe I have to -- do I have to hit

09:16 podium input?
09:16 THE COURT: This is when we call in the pros.
09:16 THE WITNESS: Okay.
09:16 BY MR. HATTENBACH:
09:16 Q. All right. Success.
09:16 A. Yeah. And this is going to be a glasses exercise, it looks like. Okay. So please ask the question again.
09:16 Q. Yes. Do you recognize this document?
09:16 A. Yes. This is what's referred to as the '373 patent that myself and my Freescale colleagues invented back in the mid 2000s.
09:17 Q. And when did you file the application that led to this '373 patent?
09:17 A. So as shown on the documents, it was filed in -- thank you. That's much better. It was filed in 2006. And you can see up in the upper right that it was granted in 2009.
09:17 Q. And do you know how many different examiners at the United States Patent Office reviewed your application materials before deciding to award you and your coworkers this '373 patent?
09:17 A. Yes. It was three different patent examiners. And that's shown in the prosecution history of the patent itself, essentially the back-and-forth between Freescale and the Patent Office.
09:17 Q. And who are these other inventors listed here on the

first page of your patent?

A. So Andrew and Shayan -- I guess the first name and the last name, but Andrew and Shayan were both, you know, senior memory designers working on leading edge designs at Freescale at the time.

Bradford was kind of a more junior individual at that point in time, working under the tutelage of the others.

Q. And who was the person who first came up with the ideas that led to the patent?

A. So it was essentially a joint invention, if you will, between initially Andrew and myself. And then subsequently, Bradford and Shayan added additional items.

Q. Did you and your fellow inventors all have the same level of seniority at the company at that time?

A. No. I was a project manager at that point and so was senior to the other individuals.

Q. And what were you working on when you and your team came up with the ideas in the '373 patent?

A. So we were working on a next-generation Freescale microprocessor for use in computing in, you know, communications, Internet networking applications.

Q. Were there any particular problems you were trying to solve at that time?

A. Yes. There were -- apologies for the mic. But essentially what we were trying to do on that microprocessor

09:19 was to have multiple operating states, right? So essentially
09:19 different ways of saving power, right?
09:19 And the problem we were struggling with is that, you know,
09:19 different circuits on the microprocessor can have different
09:19 voltage requirements for it to properly operate.
09:19 You think about, let's say, a circuit that's just doing
09:19 calculations, maybe something that's just adding numbers, if
09:19 you will, right? They may have a -- that type of circuit may
09:19 have a different voltage constraint than, let's say, something
09:19 else, like a memory where you're trying to store data.
09:19 So these different circuit constraints were challenging in
09:19 terms of trying to figure out how do we lower the power on one
09:19 portion of the design while --
09:19 THE COURT: Excuse me. Let me -- ladies and gentlemen of
09:20 the jury, can you see what he's talking about?
09:20 MR. HATTENBACH: Oh. He's not talking about the patent --
09:20 he's not talking about what's on the screen at the moment.
09:20 He's just talking about his -- the problems he was trying to
09:20 solve when he came up with the ideas that ended up in the
09:20 patent.
09:20 THE COURT: Okay. I'm sorry to interrupt you. I
09:20 shouldn't have done that. Someone told me that the jury
09:20 couldn't see the document.
09:20 THE WITNESS: I'm kind of doing a little bit of hand
09:20 waving over here.

09:20 MR. HATTENBACH: The patent is not on the screen for the jury?

09:20 THE COURT: Right. That's what I was trying to tell you.

09:20 MR. HATTENBACH: Is there something we can do about that? I think we hit "request to publish video" and we thought it had shown up at that point.

09:20 THE WITNESS: Apologies.

09:20 MR. HATTENBACH: Thank you for mentioning that, Your Honor. I was unaware.

09:21 (Off-the-record discussion.)

09:21 MR. HATTENBACH: All right. Thank you. Sorry about that.

09:21 BY MR. HATTENBACH:

09:21 Q. Let's go back and tell us, was there a particular problem you were trying to solve at that time you came up with these ideas in the '373 patent?

09:21 A. Yes. So on that microprocessor that we were working on, we were trying to have multiple operating states to save power, right? And essentially, if you look at what's on a microprocessor, there's different circuit types, the ones doing the calculations or things like, you know, a memory, as an example, that may store data.

09:21 And those different circuit types may have different voltage constraints in terms of how much voltage do they require to actually perform their function, if you will, right? What may work for this circuit doing the calculation may not

work for the memory where it's trying to store the data. And, in fact, if its voltage got too low, you would perhaps lose the data you wanted to store.

Q. And did you and your team come up with any ideas for solving those problems?

A. Yes. It was -- essentially, we were trying to figure out, again, how to manage those two different voltage requirements in the circuit. And we came up with a way to do that that we thought would save power.

Q. And can you explain how you thought your idea would save power?

A. Yes. And so if you go off -- and again, we recognized that these two different circuits had different constraints on the voltages that they required, right? And, you know, again, if you tried to lower the voltage on the memory, you might have an issue with respect to storing the data and retaining it, right?

And it's complicated a little bit by the fact that in general, if you look at a microprocessor, most of these different circuits are all kind of connected to a common supply, if you will. So one power rail.

And so if you just wanted to go off and save power on these calculating circuits, you know, by lowering them down, that voltage down, then in fact since we have one power rail. And if you went off and lowered that one power rail, then in

fact, yes, you would save power on this circuit, but you'd lose data over here, right? And your processor would no longer function when you tried to bring it back out of that state, in a sense, right?

So we developed a way to selectively manage the voltages between these two circuits, such that we could save the power when we wanted to on these computation circuits, but, again, have the memory to retain the data that we wanted such that when we came out of that sleeping state, if you will, as an example, that in fact, you'd be ready to operate properly.

Q. Was power savings important to you in this context?

A. Absolutely. Power savings is critical to processor design. It was critical back in 2006. It is absolutely still critical today with -- even with technology advancements. And it's very important to microprocessors and any other system like that, really, that has, you know, let's say memory and other multiple circuits that maybe have different requirements.

Q. Okay. In your experience, have power savings been important to the success of the products that you've worked with?

A. Sure. You know, everybody wants -- maybe a couple of examples. Everybody wants the fastest processor. Everybody wants the longest battery life. And so power savings is essential, right? It's critical to the financial and commercial success of today's products and, again, products

back then and up through today.

It's critical in terms of what a customer may look for and critical in terms of, you know, marketing to those customers, if you will.

Q. Thank you. Let's go back to your patent for a moment. Hopefully everyone can see it now. If not, just give me a shout.

But on the first page of your patent, there's a section titled "Abstract." Can you tell the jury what the abstract is?

A. Yes. And thank you for making it larger.

But, you know, so the abstract's essentially just, you know, an overview of some of the ideas of the patent.

Q. And if the abstract's just this high-level overview, is there a place where the legal definitions of the inventions are set forth in the patent?

A. Yes. It's in the claim section of the patent itself. And that's where, in a sense, we document the inventions. And I'll say that that's a -- you know, those claims and the document as a whole is written by patent attorneys. And they use a language that I find rather tedious and, you know, sometimes hard to follow.

Q. On behalf of patent lawyers, I'll apologize for that.

Now, did you have a chance to watch the opening statements yesterday?

A. Yes. I did.

09:25 Q. And do you recall Intel's lawyer making some
09:26 statements about the abstract of your patent?
09:26 A. Yes. Which I thought was rather odd when I heard it.
09:26 I think the discussion was, essentially, something like: Both
09:26 sides can agree that the inventions are, in fact, outlined in
09:26 the claims, right?
09:26 But then immediately, you know, he jumped into
09:26 essentially: But here's what the abstract requires, right?
09:26 And that's starting, in my opinion, to confuse the jury in
09:26 terms of exactly where are the inventions defined. And the
09:26 inventions are defined in the claims themselves.
09:26 Q. All right. Let's turn to Page 5 of your patent. And
09:26 the section entitled "Detailed Description of the Drawings."
09:26 Sorry that it's small.
09:26 A. Yeah.
09:26 Q. But just generally speaking, can you tell the jury
09:26 what that section relates to?
09:26 A. Yes. There are four different figures in the
09:26 document. And really what the detailed description of the
09:26 drawings is trying to do is kind of walk through some examples
09:27 of how the inventions may be used, right?
09:27 So, you know, example embodiments are essentially examples
09:27 of, you know, ways that you might take the inventions and
09:27 implement something, right? But these are really only examples
09:27 and not limited.

09:27 Q. Okay. So let's take a look at Figure 1 of your '373 patent. And can you just explain at a high level what we're seeing here?

09:27 A. Yes. Again, this is, you know, one example of an implementation. And you can see some of the features that we've essentially showed in this example with respect to the patent, right?

09:27 So you can see there's a power supply selector switch, which I think is labeled 21. And there are two voltage regulators also in there, which I think are labeled 26 and 24. And essentially, it's these additions that we've kind of, you know, added in to allow us to go off and recognize these constraints of the circuits. You know, different circuits have different limitations.

09:28 And by adding those two elements, the power supply, selector switch and the additional voltage regulators, really what that lets us do is to go off and manage the voltage into these different IPs for the states of the design that we really need to have. It's a way for us to go through and optimize the system and improve the power of the design.

09:28 Q. And in this example shown in Figure 1, was it your first instinct to add the power supply selector and the second voltage regulator?

09:28 A. No. Not necessarily. And that's maybe the interesting piece in a sense, right?

Usually, if you're trying to reduce power, you kind of might want to simplify things or, you know, take things out of the system, right? That's normally the first approach, if you will.

Here, we went off and kind of made the system more complex, and essentially by adding that complexity which is not your normal first course of action, we kind of enabled it to be more efficient, right? We could go through and optimize the different operating states and end up saving power by adding that complexity.

Q. Why did you choose to have voltage regulators instead of using unregulated voltages?

A. Well, there's maybe a couple of things. And perhaps the easiest thing that we've kind of already talked about is just simply if I've got two different operating states, I want a first voltage applied, and then I want to move off to a second voltage, right, then obviously you need to apply the target voltage that you were designing for, right? So that is one reason of having a voltage regulator.

But the other point is as you're moving between those two states, right, so if I'm at a high-voltage state going to a low voltage or vice versa, right, you have to be concerned about reliability, right? And on microprocessors, you want them to be as reliable as possible. You want them to last as long as possible. And so the thing that you're trying to avoid is you

09:29 1 don't want to change the state too quickly in that voltage.
09:30 2 If you do, what can happen is that, in fact, you may get
09:30 3 some overshoot, right, where you're trying to get to a
09:30 4 particular voltage, but in fact you overshoot it a little bit
09:30 5 before coming back, right, with these quick transitions, right?
09:30 6 And that would, you know, damage the part, you know, maybe
09:30 7 permanently damage the part such that it would no longer work,
09:30 8 right?
09:30 9 So by having kind of a controlled ramp rates between these
09:30 10 two states of that voltage, we're using that voltage to go
09:30 11 through and improve the reliability of the microprocessor.
09:30 12 Q. All right. Are there other figures in your patent?
09:30 13 A. Yes. I think there's a total of four. And so if you
09:30 14 go to the next page, so here's figure -- thank you -- Figures 2
09:30 15 and 3 are here and then essentially Figure 4 on the page
09:30 16 following.
09:30 17 Q. Great. And can you describe, just in general, what
09:30 18 other information your patent contains?
09:30 19 A. Yes. If you go to the next page.
09:30 20 So here you can see the -- you know, there's a couple of
09:31 21 sections here on this page. There's the field of invention and
09:31 22 the related art, so this is really the background against the,
09:31 23 you know, what we are innovating against, right, so what's the
09:31 24 background of the design that we were trying to go off and
09:31 25 improve the state of the art, if you will, right?

09:31 There's another section here, the brief description of the drawings, which are really just, you know, some high level overview of the drawings.

09:31 And then again the detailed description of the drawings are in a sense, you know, where we've walked through these examples of how the inventions may be used, and, again, you know, they're examples and not necessarily intended to be limiting.

09:31 Q. Well, did you make that clear in the patent?

09:31 A. Yes. In multiple cases. And let me see if I can find -- if you look at Line -- around Line 30, 29 and 30, I think.

09:31 MS. SOOTER: Your Honor. I'm sorry to interrupt, but I object to the witness testifying about the scope of the patents in the claim coverage.

09:31 MR. HATTENBACH: He's just testifying about what he said in the patent. You can see it right on the screen. These are just examples.

09:32 THE COURT: I agree. I'll overrule the objection.

09:32 BY THE WITNESS:

09:32 A. So there's text here that's included in the patent that basically, you know, again written by patent attorneys, but the present invention is illustrated by way of example and not limited by the accompanying figures essentially.

09:32 And then I think there's another entry, I believe, on

09:32 Column 12, Line -- around Line 15, I believe.

And I'm going to paraphrase this because I, you know, again reading the legal phrasing, if you will, is, you know, I don't know. I personally find it tedious in a sense. But essentially what it says here is that the invention's been described with reference to specific embodiments, right? So these are examples, right?

How one of ordinary skill -- so if you work in this area, that's what that essentially means. One of ordinary skill in the art appreciates that various modifications and changes --

THE COURT: You need to slow down just a little bit.

THE WITNESS: Sorry.

BY THE WITNESS:

A. -- can be made without departing from the scope of the present invention, right?

So again, you know, you and I might say it differently in terms of how we would say it, but the point is we're giving examples in these detailed descriptions.

If you're practicing this area, you can kind of see how you would use the inventions to kind of do other particular things around that space.

BY MR. HATTENBACH:

Q. And why did you include these two statements that you just pointed out to us?

A. Well, we thought certainly the invention or

09:33 inventions would, you know, have broad application across a
09:33 number of products in the industry, right?
09:33 So the idea was essentially to kind of, you know, make
09:33 clear that, you know, this was -- these examples were not
09:33 limiting.
09:33 Q. Okay. Did your patent contain any other materials?
09:33 A. Yes. I believe -- at this point, let's go to the
09:33 next page, please, which is Columns 13 and 14.
09:34 So here this is in fact the section that has the claims,
09:34 and you can see there are a number of paragraphs from 1 to -- I
09:34 can't see the bottom necessarily -- but 1 through 16. Thank
09:34 you.
09:34 And it's essentially here that the inventions are outlined
09:34 and kind of the boundaries of the patent rights are set within
09:34 this text.
09:34 Q. And in your mind what were the benefits of the
09:34 inventions that you made with your colleagues and patented?
09:34 A. So, you know, probably a few things, right?
09:34 The first was just we recognized this voltage as a
09:34 variable that we could go off and apply to the circuits
09:34 differently, right? And that, you know, allowed us to kind of,
09:34 you know, construct the design in a way that, depending upon
09:34 what we wanted to manage, is this a computation circuit or is
09:34 this a memory circuit with a different constraint on its
09:34 voltage. You know, how do we go through and kind of manage

that circuit itself, right?

And again, I think the benefit is it really allows you to kind of move quickly between, let's say, a low power state, a sleep state or something like that back to a full operational state very quickly without having lost the memory itself.

Q. Okay. Back in 2006, were there any particular products that you thought might benefit from your inventions?

A. Well, certainly microprocessors we thought would benefit and really anything else that again has this, you know, interplay of essentially memory and requiring to maintain that memory state versus also going back in and having these other circuits that we could take into a lower power operating state.

Q. Okay. Do you know if Freescale ever used the inventions in the '373 patent in its own products?

A. No. I do not. And in general, that's not something that I would keep track of, right? Freescale -- and, you know, is essentially -- it's a company that has a broad range of products. And I'd say there's probably over a thousand products, right? So they're not focused in on one particular area, you know, let's say, like, you know, processors for PCs, a broad range of applications, and again we kind of said, you know, airplanes to cars, if you will, right?

So lots of different applications, lots of different circuits and keeping track of where a particular patent was used was not something that anyone did.

09:36 Q. Do you recall during the opening statement from Intel yesterday there was some criticism about NXP not analyzing your patent against its products to figure out if the patent was being used in the NXP products?

09:36 A. I do recall that. You know, I -- that would -- you know, I do a lot of searching through, you know, various designs that we do and, you know, trying to find different IPs, if you will, in a sense, right?

09:36 Taking on the task of trying to track down where the invention might have been used would be formidable, right? It would be a -- you know, at the very least it would be a full-time job for many years, and my personal opinion is that it would be an impractical job.

09:37 Q. All right. About how many products does NXP make?

09:37 A. I don't know the exact number, but certainly it's in the thousands. Again, you know, NXP is like Freescale, that -- it's a broad range of products in their portfolio.

09:37 Q. And would you have any reason to try to determine whether NXP uses your '373 patent in its products?

09:37 A. No. There's -- you know, given that we own the patent, there's no reason to try to track down precisely where it might have been used.

09:37 Q. And are you aware of any reason why NXP's use or nonuse of your patent would have any bearing on whether Intel is using or not using that patent?

A. No. That is not related at all, right? The patent is the patent of the idea and I think stands on its own as, you know, that, you know, patenting of the inventions.

Q. Okay. How do the ideas you just described a few minutes ago result in a patent application being filed?

A. So myself and my co-inventors, we all kind of agreed that this was a new and novel idea and that it would be useful in the industry, useful a broad number of places, right? So we did a write-up that essentially was a presentation of the concepts, if you will, that we had at the time and took it before the Freescale internal patent committee.

Q. And what was that committee?

A. So the Freescale internal patent committee was essentially a collection of senior engineers and patent attorneys, I have to throw them into the mix, that, you know, essentially reviewed ideas that came before them and tried to decide: Does this idea have sufficient merit that we should invest the time and the money into trying to pursue a patent?

Q. And at the time, did you think your ideas were new and novel?

A. Yes. We certainly did, right? You know, this was, you know, in a sense a new approach to go off and, you know, tackle the problem of power savings, you know, bringing in the complexity, bringing in, you know, the additional power supply selector switch, the voltage regulators. That was something

that we had not seen before and we thought again was valuable to the industry.

Q. And once the Freescale patent committee said you should go ahead and file for a patent, were you able to do that?

A. Not immediately. The -- in fact, what Freescale had at the time was a -- I think it was the Freescale Strategic Impact Review Board, right?

And so this -- you know, there were various patent committees that would bring up ideas that they thought were worthy, but really it had to go past an additional bar from the Strategic Impact Review Board of trying to say: Does this really fit within one of the areas that we think is very important to the company, right?

And so they -- you know, they did review the patent ideas and agreed that it was of value and very -- again, one of the critical areas that they wanted to protect.

Q. All right. Did you personally have involvement in applying for the patent?

A. I certainly reviewed the write-up. I reviewed the -- you know, the claims, the document at the time and, you know, thought that it captured the inventions properly. And -- but I did not write the patent application, and I'm not a patent attorney.

Q. All right. Different topic.

09:40 Do you recall that your patent discusses the minimum operating voltage of a memory, generally speaking?

09:40 A. Yes. I believe it does.

09:40 Q. Is there only one way to determine the minimum operating voltage of a memory?

09:40 A. No. There's multiple ways of, you know, determining the minimum operating voltage of the memory.

09:40 You know, essentially, the first thing you have to decide

09:41 is, you know, what type of operating -- what type of operation are you trying to cover, right? Are you reading the memory, writing the memory, or maybe you just want to retain the state, right? So you need to kind of bound the space.

09:41 But then once you've done that, then you can go off and determine the minimum operating voltage that you want to use in a lot of different ways, right?

09:41 You may go to the foundry, right, who manufactures the parts. You may go to the foundry and use their data for the distribution characteristics of how the bit cell might behave.

09:41 You might run your own silicon and see what measurements you would take and use. You might, in fact, do a circuit simulation using the models of the technology to try to see what the minimum operating voltage may be.

09:41 So there's multiple ways that you can go off and determine that value.

09:41 Q. And what is a guard band, briefly?

09:41 A. Guard band is something that, you know, we engineers
09:41 use in a number different of ways, right? We -- because the
09:42 advanced technology nodes have a lot of variability, right, in
09:42 terms of how the -- when you build something, there's a lot of,
09:42 you know, range in the characteristics that you may get out,
09:42 right? And so we guard band lots of different things, right?
09:42 Specifically, an example is if you had a measured minimum
09:42 operating voltage, if you had a simulated minimum operating
09:42 voltage, you'd want some guard band on that because again,
09:42 there's a distribution characteristic of what comes off the
09:42 manufacturing line, and you need to account for that as well as
09:42 other things about how the circuit may change over time as you
09:42 operate the circuit.
09:42 Q. And do you recall whether your patent discusses the
09:42 use of guard bands?
09:42 A. I believe it discussed margins at some level. I
09:42 can't remember the exact phrasing, but guard band or margining,
09:42 one of the two.
09:42 Q. Okay. Did you receive any award from Freescale
09:42 relating to the inventions in your '373 patent?
09:42 A. Yes. I did. It was standard practice that when you,
09:43 you know, applied for a patent then, in fact, you know,
09:43 Freescale would give you a cash award, if you will, to each one
09:43 of the inventors. And I can't remember the exact value,
09:43 somewhere between 1,000 and $3,000, right?

09:43 And so that's good money. I was happy about that and, you know, proud of the work on the patent. And I would be happy if NXP received the benefit of the patent itself.

09:43 Q. Okay. Did you have an understanding about whether that amount of your award was supposed to have any relationship to the value of your invention?

09:43 A. No. It was just a nice thank-you from the company for helping them out on something that was important to them.

09:43 Q. Okay. Just one more question.

09:43 When you presented your inventions to Freescale, did you have any thoughts or ideas about the value they could derive?

09:43 A. Sure. We thought that -- you know, again, this was an invention that was, you know, allowing us to save power in electronic devices, in microprocessors or other things of that nature, right? And, you know, if it's used on a product that's sold in high volumes, as an example, then obviously the value would be very high, very significant, right?

09:44 You know, hundreds of millions of microprocessors are sold every year. And so if the patent is used to save even a little bit of power, then the cumulative benefit over all of those parts would be significant.

09:44 Q. Thank you very much, Mr. Bearden.

09:44 MR. HATTENBACH: Pass the witness.

09:44 CROSS-EXAMINATION

09:44 BY MS. SOOTER:

09:45 Q. My name is Mindy Sooter, and it's nice to meet you.
09:45 A. Nice to meet you.
09:45 Q. Now, you just spent a fair amount of time testifying about the '373 patent, correct?
09:45 A. Yes, I did.
09:45 Q. You've been on the stand already for about 40 minutes, right?
09:45 A. I didn't keep track of the time, but I'll believe you.
09:45 Q. Okay. You talked to the jury about the front page of the patent, right?
09:45 A. Yes, I did.
09:45 Q. You talked to the jury about the abstract of the patent, correct?
09:45 A. Yes, I did.
09:45 Q. You pointed to Figure 1 of the patent, right?
09:45 A. Yes.
09:45 Q. In fact, you looked at all of the -- you talked about all of the figures, right?
09:45 A. Not all of the figures. I did highlight the fact that there were Figures 2 and 3, but -- 4, sorry, but we did not go through those.
09:45 Q. Exactly. You talked about the background section of the patent, right?
09:45 A. Yes.

09:45 Q. You talked about the specification of the patent, didn't you?
09:45 A. Yes.
09:46 Q. And you talked about the claims of the patent, right?
09:46 A. I don't know that I went into any detail on the claims.
09:46 Q. You would agree that the claims are what define the scope of the invention though, right?
09:46 A. That's true.
09:46 Q. Now, during your deposition last year, you were uncomfortable making any statements relating to the '373 patent; isn't that right?
09:46 A. So at the time -- again, this was -- I think that patent was invented, if you will, 15 years ago, approximately, now. And I had not reviewed the patent at that point in time, and so it was not fresh in my mind with respect to what was in that document.
09:46 Q. Mr. Bearden, I believe you have a black binder in front of you.
09:46 A. Maybe. Okay.
09:46 Q. Your deposition transcript is at Tab 1. Can you please turn to Tab 1?
09:47 A. And I will point out that I've had a detached retina in the past, and so any small font is -- does not get along with me.

09:47 Q. We'd be happy to show it on the screen.
09:47 A. That's probably better if you would.
09:47 Q. As a matter of fact, let's go ahead and bring that up, your deposition transcript at Page 228, Lines 9 through 15. Now, you were deposed in April of 2020, right?
09:47 A. I believe that is correct, yes.
09:47 Q. Ten months ago, correct?
09:47 A. Yes.
09:47 Q. And you were under oath at the time, right?
09:47 A. Yes.
09:47 Q. And you were shown the patent before your deposition, right?
09:47 A. I believe what I testified then was, in fact, when I was alerted to the fact --
09:47 THE COURT: Sir, sorry.
09:47 Let's take the transcript off until you're going to show it.
09:47 MS. SOOTER: Thank you. Thank you, Your Honor.
09:47 BY THE WITNESS:
09:48 A. Sorry. Go ahead and ask the question again.
09:48 BY MS. SOOTER:
09:48 Q. You were shown the '373 before your deposition?
09:48 A. So when I was given heads up that the deposition would occur, then the counsel -- I guess NXP and the VLSI counsel did show me the front page of the patent. That

basically -- essentially, the conversation was one of, hey, do you remember this patent?

And, you know, after a little bit of head scratching, then I kind of said, yeah, vaguely. Right? So, yes.

Q. So before your deposition, VLSI's counsel showed you the '373 patent, right?

A. They did.

Q. So let's go to --

A. And again, I was aware of the patent.

Q. Let's go ahead and bring up your deposition transcript Page 228, Lines 9 through 15. Now --

MR. HATTENBACH: Objection, Your Honor. This is not impeaching. It's exactly consistent with what he has already said.

THE COURT: Well, let me say, this is not impeachment. What you need to do, counsel, is ask him a question, and if the answer to the question he gives that you ask in front of the jury is different, then you can show the deposition. You don't get to use the deposition to ask the questions.

MS. SOOTER: Yes, Your Honor. I will ask again.

BY MS. SOOTER:

Q. You said earlier you're not comfortable -- at your deposition, you were not comfortable testifying about the '373 patent, correct?

A. That is correct.

09:49 Q. Now, you just told the jury about the process by which you came up with the ideas for the '373 patent, right?

09:49 A. Yes.

09:49 Q. You spent a fair amount of time talking about what you and your coworkers were working on to come up with the ideas in the patent, right?

09:49 A. Yes.

09:49 Q. You explained the technology, and you talked about the problem you were trying to solve, right?

09:49 A. Yes. And essentially what happened in the April time frame was that, you know, I was given a very short notice, if you will, that in fact there would be a deposition. And Intel requested --

09:50 THE COURT: Excuse me. Here's the way it works. When you're on cross, this is cross. This isn't direct. On direct, you get to say whatever you want in response to your counsel.

09:50 THE WITNESS: Okay.

09:50 THE COURT: When you're on cross, the attorney for the person asking the question on cross gets to ask you questions. If they do it in what we call a leading manner which gets a yes or no, you answer her question.

09:50 And then when she's finished, your lawyer's going to get to ask you whatever they want to help clarify any answer you may have given.

09:50 THE WITNESS: Thank you, Your Honor.

THE COURT: But if she asks you a yes or no question, I appreciate a yes or no answer.

THE WITNESS: Okay.

BY MS. SOOTER:

Q. Sir, here was my question. During your direct testimony you explained to the jury the path by which you came up with the ideas in the '373 patent --

A. Yes.

Q. -- right?

During your deposition ten months ago, you could not remember any details about how you came up with the ideas in the '373 patent, could you?

A. I was able to refresh my memory, given the documents that Intel requested I provide.

MS. SOOTER: Let's go ahead and bring up your deposition transcript, Page 124, Lines 24 through 125, Line 1.

BY MS. SOOTER:

Q. At your deposition ten months ago you were asked, "Do you remember any details about how you came up with the ideas in the '373 patent?"

Your answer was, "The path to it, no, I don't."

Did I read that correctly?

A. Yes, ma'am.

Q. Thank you.

And you were under oath then, right, sir?

09:51 A. Yes.

09:52 Q. And you know that your deposition was Intel's chance to ask you questions about the '373 patent and your ideas, right?

09:52 A. I understand that, yes.

09:52 Q. And in fact, it was Intel's only opportunity to ask you questions about these ideas before today, right?

09:52 A. Yes, but the request was not made that I read the patent.

09:52 Q. But you were shown the patent by VLSI's lawyers, right?

09:52 A. The first page, yes.

09:52 Q. Mr. Bearden, you don't remember how much time you spent working on the ideas in the '373 patent, do you?

09:52 A. Not precisely after 15 years.

09:52 Q. That's a good point, sir. The ideas in the patent came from 2006, right?

09:52 A. Yes.

09:52 Q. That's almost 15 years ago; isn't that right?

09:52 A. Approximately now, yes.

09:52 Q. You can't say whether you spent more or less than ten hours working on the ideas in the '373 patent, can you?

09:53 A. It's been too long that I can't remember the exact duration and time.

09:53 Q. And if you came up with a number of hours that you

spent working on those ideas, you'd just be making it up, right?

A. I think anything that I would give would just be a -- you know, a guess at some level, and that likely would not be accurate.

Q. Now, let's talk about those ideas in the '373 patent, okay?

A. Sure.

Q. Now, did you have the opportunity to see Mr. Chu's opening statement?

A. Yes, I did.

Q. And he talked a lot about the '373 patent having to do with sleep states, right?

A. I believe he mentioned that term, yes.

Q. He used the term a number of times, didn't he?

A. I didn't count, but I believe he used the term.

Q. And you yourself used that term a couple of times today, right?

A. Yes.

Q. And you used that term in connection with the '373 patent, didn't you?

A. Yes, I did.

Q. If I were to read the '373 patent front to back, the word "sleep" is not found in that patent, is it?

A. That I don't know. I believe we used the term

"retention" or "standby."

Q. And if the jury is to read the patent front to back, as they are probably going to have to do to decide this case, they won't see the word "sleep" in this patent either, will they?

A. They would have to be aware that the word "sleep" and "standby" are essentially the same to those skilled in the art.

Q. Sir, my question is this. And I would really like to get a yes or no answer if I could. If the jury reads the patent front to back, they will not see the word "sleep" in that patent, will they?

A. I don't know for sure, but I think we used the word "standby."

Q. Also, sir, you used the word "ramp" a number of times today, didn't you?

A. I believe I did, yes.

Q. Ramp is not in the '373 patent, is it?

A. I don't think that we spelled that out in the patent.

Q. I believe you testified that you work at NXP now, right?

A. That is correct.

Q. And you spent a fair amount of time during your direct testimony talking about NXP and what it does, right?

A. Yes.

Q. NXP is not a party to this case, is it?

09:55 A. I believe that this case is between VLSI and Intel.
09:55 Q. NXP is not a party to this case, is it?
09:55 A. No.
09:55 Q. Before NXP you worked at Freescale, right?
09:55 A. Yes. I did.
09:55 Q. You also spent a fair amount of time talking about Freescale and before at Motorola, right?
09:55 A. Yes. I did.
09:55 Q. Freescale is not a party to this case, is it?
09:55 A. No. Freescale does not exist anymore.
09:55 Q. And Motorola is not a party to this case either?
09:55 A. No. They're not.
09:55 Q. The plaintiff in this case is VLSI Technologies LLC, right?
09:56 A. That's my understanding. I don't know precisely the full company name, but that sounds right.
09:56 Q. You don't work for VLSI, do you?
09:56 A. No. I don't.
09:56 Q. In fact, you've never worked for VLSI, right?
09:56 A. No. I have not.
09:56 Q. And before you got involved in this litigation, you had never even heard of VLSI Technologies LLC, had you?
09:56 A. No. I had not.
09:56 Q. Now, you understand that NXP sold the '373 patent to VLSI, right?

09:56 A. I don't know the precise nature of the transfer. I only know that it was assigned, and I have no other information about precisely what that means.

09:56 Q. Assigned means that NXP does not own the patent anymore, right?

09:56 A. I'm not an expert in that, and so I can't say.

09:56 Q. NXP has thousands of patents, right?

09:56 A. I believe they do. Yes.

09:56 Q. NXP does not own the '373 patent any longer, right?

09:57 A. Again, I'm not involved in that part of the business, if you will, and so I can't answer that question.

09:57 Q. Well, you weren't involved in the sale of the patent, right?

09:57 A. No. I was not.

09:57 Q. You didn't negotiate the terms of the sale, did you?

09:57 A. No. I did not.

09:57 Q. And you don't know how much VLSI paid for the '373 patent, do you?

09:57 A. No. I do not.

09:57 MS. SOOTER: Can we bring up PTX-4, the '373 patent, please?

09:57 BY MS. SOOTER:

09:57 Q. Now, up on the top right is the patent number, right, sir?

09:57 A. Yes.

09:57 Q. Ends in '373, and that's why we call it the '373 patent, right?

09:57 A. Yes. It would be tedious to repeat all those numbers.

09:57 Q. The inventors are listed over on the left-hand side, right?

09:57 A. Yes.

09:57 Q. And I believe you testified earlier there are four inventors on the patent, right?

09:57 A. Yes.

09:57 Q. You're the second named inventor, right?

09:57 A. Yes. That is true.

09:57 Q. It's not uncommon to refer to a patent by the inventor's name, is it?

09:58 A. No. It's not.

09:58 Q. In fact, the first named inventor is listed on the top of the patent on the second row, right?

09:58 A. Yes.

09:58 Q. Safe to say you could call this the Russell patent, right?

09:58 A. I'm sorry. I didn't catch the question.

09:58 Q. The first named inventor is named Andrew Russell?

09:58 A. Oh, okay. Sorry. I got it now.

09:58 Q. Right. Sorry. I skipped a question.

09:58 A. I heard Russell and I...

09:58 Q. My fault. I skipped a question.
09:58 The first named inventor is Andrew Russell, right?
09:58 A. Yes.
09:58 Q. And Mr. Russell's name is listed at the top?
09:58 A. Yes. It is.
09:58 Q. So we could call this the Russell patent, right?
09:58 A. For a shorthand, you perhaps could.
09:58 Q. And that's pretty conventional, right?
09:58 A. In general, yes.
09:58 Q. Now, there were two other named inventors, right?
09:58 A. Yes. Bradford and Shayan.
09:58 Q. All four of you contributed to the ideas in the '373 patent, right?
09:58 A. Yes.
09:58 Q. And all four of you worked at Freescale at the time, right?
09:59 A. Yes. We did.
09:59 Q. And that's why you assigned the patent to Freescale, correct?
09:59 A. Yes.
09:59 Q. Now, switching gears slightly, the semiconductor market is highly competitive; wouldn't you agree?
09:59 A. It's a very competitive business. Yes.
09:59 Q. And the semiconductor market is characterized by rapid technological change, right?

09:59 A. I think that's been its hallmark over the years. Yes.

09:59 Q. In fact, in the semiconductor industry, you can't just sit back and depend on what you've done in the past to boost you into the future, can you?

09:59 A. No. It's a continuous cycle of research and development.

09:59 Q. In the semiconductor industry, you have to keep on innovating, don't you?

09:59 A. Yes. You do.

09:59 Q. And to compete, you have to keep coming up with new ideas, right?

09:59 A. Yes. You do.

09:59 Q. And you testified that one of the things that's important to the semiconductor market is power savings, didn't you?

10:00 A. Absolutely. Yes.

10:00 Q. And would you agree that over the years it's been really important for all companies to have increased power savings?

10:00 A. I think that's been a focus for the majority of the companies in the industry. Yes.

10:00 Q. And your customers expect that you'll make products as low a power as possible so the batteries last longer, right?

10:00 A. In some applications batteries are a consideration,

but in general, power is a prime consideration for any design.

Q. Now, Freescale, the original owner of this patent, was in the semiconductor market, right?

A. Sure.

Q. And when Freescale owned the '373 patent, it had all the rights it needed to use the patent, didn't it?

A. Yes. They did.

Q. But you're not aware of any Freescale product that has used the '373 patent, are you?

A. So I testified earlier that I'm not aware of where it might have been used throughout Freescale. I can only testify to what I know from my personal experience for the products I worked on.

Q. You're not aware of any Freescale product that has used the '373 patent, are you?

A. No. Given the change in the focus of the processors we were building.

Q. Now, NXP acquired the patent in 2015, right?

A. Yes.

Q. And, in fact, NXP is still, to this day, has the rights to use the '373 patent, doesn't it?

A. I believe that's the case. Yes.

Q. So NXP has had the right to use the '373 patent for over five years?

A. I believe that's correct.

10:01 Q. But you're not aware of any NXP product that has used the invention of the '373 patent, are you?

10:02 A. Again, it's the same problem, that many, many parts, and I can't keep track of where it might have been used. I could only tell you my personal experience on projects and programs I've been involved in.

10:02 Q. You're not aware of any NXP product that has used the invention of the '373 patent, are you?

10:02 A. I do not know where it might have been used.

10:02 Q. Now, sir, have you seen in your everyday life when you're using a product or, you know, even a consumer product and it has a patent number written on it?

10:02 A. Yes.

10:02 Q. NXP has never put the '373 patent number on any of its products, has it?

10:02 A. That I'm not aware of. No.

10:02 Q. And Freescale never put the number of the '373 patent on any of its products either, did it?

10:02 A. That's not information that I would have at my hand here.

10:02 Q. Now, you're a fellow at NXP, right?

10:02 A. Yes. That's true.

10:03 Q. That's a pretty senior position in the engineering ranks, right?

10:03 A. Yes. It is.

10:03 Q. And you're a named inventor of course on the '373 patent, as we've heard, right?

10:03 A. Yes.

10:03 Q. And that's a patent that Mr. Chu called a "star" and a "hero" patent, right?

10:03 A. Yes. Because -- I think he gave it that description given the applicability to different markets.

10:03 Q. And you believe that the '373 patent is a power-saving invention; is that right?

10:03 A. Absolutely.

10:03 Q. But to the best of your knowledge, no product at NXP or Freescale has ever used the '373 patent; isn't that right?

10:03 A. The patent was done for a particular application, and that power-saving technique did not work anymore for the types of products that we were building in customer application, so we had to search for new ways to save power.

10:03 THE COURT: Again, let me remind you. She's asking you questions that allow you to answer yes or no. If there's a reason that the answer is yes or a reason that the answer's no, your counsel's going to have all the time he wants to have you explain.

10:04 THE WITNESS: Sorry, Your Honor.

10:04 BY MS. SOOTER:

10:04 Q. To the best of your knowledge, sir, no NXP or Freescale product has used the ideas in the '373 patent; isn't

that right?

A. I don't know of any particular product.

Q. In fact, you said it would take you thousands of hours to find that out, right?

A. That would be a very tall order. Yes.

Q. And you never asked anyone to do that, right?

A. No.

Q. Thank you. That's all I have.

A. Sure.

REDIRECT EXAMINATION

BY MR. HATTENBACH:

Q. Hello again, Mr. Bearden. I just have a handful of questions for you.

To start with, you were asked some questions about whether you had reread your full deposition transcript from cover to cover right before your deposition, and you weren't allowed to explain why that didn't happen. Could you explain that?

A. Yeah. I believe the question was had I read the patent before the deposition.

Q. Oh, I'm sorry. You're right. So why didn't you read the full --

A. I believe that was the question asked.

Q. Why didn't you read the full patent, cover to cover, right before your deposition?

A. You know, it was short-ordered in terms of: Here's

10:05 1 the patent. Do you remember this?
10:05 2 And also it was, Intel has requested that you find all
10:05 3 documentation available with respect to the patent.
10:05 4 And this was in April, and this was prime COVID time,
10:05 5 right? And the world was pretty much chaotic. NXP was
10:05 6 fundamentally shut down.
10:05 7 And to get into the plants, which, you know, everyone was
10:05 8 working from home, and so I had to go into the plant. You
10:05 9 know, it was quite an ordeal, right? You had -- it was full
10:06 10 mask, goggles, you know, the ten questions, the thermal thing,
10:06 11 and then walking into essentially an empty, dead building,
10:06 12 right?
10:06 13 And so I spent the time that I had on the weekends
10:06 14 searching through all paper documents that I could find,
10:06 15 searching through -- I had several old laptops that had been
10:06 16 sitting around forever that I managed to power back up and
10:06 17 search through old e-mails.
10:06 18 And so I spent the majority of my time before that
10:06 19 deposition, in fact, fulfilling Intel's request to go through
10:06 20 and find all available documentations with respect to the
10:06 21 patent.
10:06 22 And so at that point in time, I had to get back to my day
10:06 23 job, and I did not have time to read the full patents.
10:06 24 Q. Okay. And then you were shown the single deposition
10:06 25 excerpt, none of the context, where you suggested at that time

you weren't comfortable without reviewing the patent, talking about it in detail. Do you remember that generally?

A. Generally, I remember that conversation.

MR. HATTENBACH: Mr. Simmons, could you put up from his deposition Page 29, Lines 12 to 19?

BY MR. HATTENBACH:

Q. I just want to provide a couple of other contextual examples.

Sir, is this another passage from your deposition that you recall that you weren't shown earlier today?

A. One moment here.

Yes. That looks familiar, and it kind of sounds like me.

Q. Okay. So you did tell the Intel lawyers that you certainly have an understanding of the original idea that was presented to the patent committee, et cetera, but that you're not a lawyer, right?

A. Yes.

Q. Okay.

MR. HATTENBACH: Mr. Simmons, if you could put up Page 93, Lines 19 to 24.

Why don't we do this just to save time, Your Honor. Could I just have the witness read the testimony to the jury?

THE COURT: I was hoping you were going to say that.

MR. HATTENBACH: Okay.

BY MR. HATTENBACH:

10:08 Q. So the question was: Do you have any understanding of what this patent comprises? And the answer was?

10:08 A. Should be yes.

10:08 Q. The answer was -- tell me if I'm reading this correctly. "I certainly have an understanding" --

10:08 A. Oh, I'm sorry. I didn't realize.

10:08 Q. That's okay.

10:08 A. I thought you were trying to advance to something else, and I was just out of sync with you.

10:08 Q. So the answer -- was the answer, "I certainly have an understanding of" -- lost the page here. "I certainly have an understanding of what the original idea was that was presented to the patent committee. Exactly commenting on the patent write-up, I think there's a reason why engineers write technical papers and lawyers write patents. It's two different worlds here, right?"

10:09 A. Yes.

10:09 Q. That was your testimony?

10:09 A. Yes. And that -- you know, the point was yes, we understood what the invention was related to. But to go off and comment on a legal document at the time was not something that -- you know, in general, that's not my area of expertise.

10:09 Q. All right. To save time and video issues, I won't show you others. But let me ask you a different question.

10:09 Ms. Sooter asked you about sleep states. Do you recall

10:09 that generally?
10:09 A. Yes.
10:09 Q. And as you understand your ideas in your '373 patent, can they be used to implement sleep states in microprocessors?
10:09 A. Absolutely. You know, and again, we used, as I remember the phrases, "retention" or "standby" in the patent. And again, to someone that's kind of in the business, if you will, those mean essentially the same thing in terms of a lower power state and inactive idle state.
10:10 Q. All right. And do you recall Ms. Sooter also asking you some questions about VLSI?
10:10 A. Yes.
10:10 Q. Has it been helpful to you personally to have VLSI working with NXP?
10:10 A. You know, there's certainly no way that I have the time in my day job to go off and track down where any particular patent might have been used, either internally or externally, right?
10:10 And again, with the fact that the nature of many designs are kept secret, there's no way that I could have pursued that, right? So certainly there's a benefit of VLSI's involvement.
10:10 Q. Thank you very much, Mr. Bearden.
10:10 A. Thank you.
10:10 THE COURT: Any other questions, ma'am?
10:10 MS. SOOTER: Just one or two questions, Your Honor.

10:10 THE COURT: As many as you would like.

RECROSS-EXAMINATION

BY MS. SOOTER:

Q. Hi.

A. Hi.

Q. Regardless of the reason, sir, prior to your deposition of last year, you simply didn't read the '373 patent, did you? Yes or no.

A. Prior to the deposition, no.

Q. In fact, you had never read the '373 patent before your deposition; isn't that right?

A. I read the '373 patent application at the time in 2006 when we signed off on that document that was submitted.

Q. You never read the patent itself after that, right?

A. Not after that, no.

Q. Thank you. That's all I have.

THE COURT: You're done.

May this witness be excused?

MR. HATTENBACH: Yes, Your Honor. Thank you.

THE WITNESS: Thank you, sir.

THE COURT: Is Intel good with excusing him as well?

MS. SOOTER: Yes, Your Honor.

THE COURT: Who will the next witness be for the plaintiff?

MR. HEINRICH: Plaintiffs call Professor Tom Conte.

(The witness was sworn.)

DIRECT EXAMINATION

BY MR. HEINRICH:

Q. Are you Professor Tom Conte?

A. I am.

Q. Good morning, ladies and gentlemen. My name's Alan Heinrich, and I'm one of the folks representing VLSI in this case.

So good morning, Professor Conte.

A. Good morning.

Q. Could you please introduce yourself to the jury?

A. Sure. I'm Tom Conte. I'm a professor at Georgia Tech. I live with my wife, our two kids and our four rescue dogs in Decatur, Georgia.

Q. And what's your role in this case?

A. So I was asked to analyze the two patents you heard about, and then Intel's products, and do a technical analysis to determine if those Intel products infringe those patents.

Q. And how many hours have you spent working on this case?

A. About 300.

Q. Are you being compensated for your time?

A. I am.

Q. And what's your rate for your time?

A. My rate's my normal and customary $600 per actual

hour of work.

Q. Is your compensation dependent in any way on the outcome of the case?

A. No. Not at all.

Q. All right. Did you prepare some slides to help illustrate your testimony today?

A. I did, and here they are.

Q. Can you summarize your educational background?

A. Sure. I received my bachelor's degree in electrical engineering at the University in Delaware in 1986, then got accepted to the University of Illinois where I got my masters in 1988 and then my Ph.D. in 1992.

Q. And what's your professional experience?

A. Well, I've been a teacher ever since. I started at the University of South Carolina, moved to North Carolina State and then Georgia Tech. But also during summers and a day a week, I would work in industry.

Q. And can you give us some examples of your work in industry?

A. Sure. So I work, for example, in the IBM's embedded power PC processor group. That power PC that you heard about earlier that Freescale was a partner in, IBM was the other partner. And I worked in the group that designed IBM's processors for that.

Q. Any other industry experience?

10:15 A. Yes. Then a group of us left, and we started a company called Billions of Operations Per Second, Inc. -- it's a mouthful, and so we call it BOPS -- and we designed a microprocessor we called Manta.

Q. And what happened to BOPS?

A. BOPS was acquired by Altera, I believe.

Q. And did you work at any other industry companies?

A. Yes. Then after that, many of my colleagues from IBM went and Qualcomm established a division in Cary, North Carolina called the Qualcomm Processor Solutions Division. And there we built the Qualcomm Snapdragon.

Q. What's that?

A. Snapdragon is the name of the processor that Qualcomm puts in a lot of cell phones, pretty much everything but Apple cell phones.

Q. So have you personally designed a microprocessor?

A. Yes. Several times.

Q. Have you received any recognition for your work?

A. Yes. I'm a fellow of my professional organization, IEEE. That's .1 percent of the membership that can be a fellow. I was elected for my contributions to, for example, microprocessor design.

Q. Did you also serve in a leadership capacity?

A. I did. I was elected to and served as the president of the IEEE Computer Society. I served in that role in 2015.

10:16 Q. Are you familiar with patents?
10:16 A. I am.
10:16 Q. Are you a named inventor on any of them?
10:16 A. Yeah. I'm the named inventor on 40 patents.
10:16 Q. And have you written any articles on microprocessor technology?
10:16 A. Yes. I've written over 100 peer-reviewed technical articles.
10:17 MR. HEINRICH: So at this point, Your Honor, we would tender Professor Conte as an expert in microprocessor technology, including the subject matter of the patents-in-suit.
10:17 MR. LEE: No objection, Your Honor.
10:17 THE COURT: He'll be so recognized.
BY MR. HEINRICH:
10:17 Q. All right. So can you give us a roadmap for your testimony today?
10:17 A. Sure. So what I'm going to do is I'm going to introduce some general things about what an expert does in my role. And then I'm going to give you a technology overview. So I'm going to teach you the things you need to know to understand my analysis. And then I'll walk through my analysis of the '373 patent and then the '759 patent.
10:17 Q. All right. So what methodology did you use in analyzing infringement in this case?

10:17 A. So I analyzed the asserted patent claims, and we'll see some of them in a little bit. And when presented with terms in the claims, I used ordinary meaning to one of skill in the art.

And then what I did -- and I'll show you this too -- is I prepared the claims to the accused products to determine whether or not that claimed elements in the product.

Q. You mentioned the term "a person skilled in the art." Who's that person for this case?

A. So that's an individual with a bachelor's degree in electrical engineering, computer engineering or computer science, and three years experience in computer engineering, or equivalent education experience. So that would characterize a lot of my past students.

Q. What documents and other information did you consider as part of your work in this case?

A. So I looked at many things. I looked at Intel confidential documents. I looked at top secret Intel source code. I looked at Intel engineers' sworn testimony. And, of course, I applied my own personal knowledge and experience.

Q. Now, how did you gain access to this confidential and top secret Intel information?

A. That's a good question. I understand Intel produced these documents during the course of this lawsuit. And what I did was I signed a confidentiality agreement that I wouldn't

10:19 disclose them outside this lawsuit so that I could access them.
10:19 Q. But you can tell us that here in court today?
10:19 A. I'm sorry?
10:19 Q. You can tell --
10:19 A. Exactly. Exactly.
10:19 Q. Now, would you have been able to access these top secret Intel documents and information without the process of discovery and litigation?
10:19 A. No. These are, again, top secret.
10:19 Q. All right. Now, as part of your work in this case, did you prepare expert reports that summarize and really detailed your analysis?
10:19 A. Yes. That was the majority of my time. So there was my opening expert report, and that was about 750 pages. And then I wrote a report in reaction to some of the positions Intel's expert took. And that was about 400 -- almost 500 pages.
10:19 Q. And how long did it take you to prepare those reports?
10:20 A. About 300 hours.
10:20 Q. Now, you mentioned source code earlier. What's source code?
10:20 A. Okay. So source code is really the -- you can think of it like a building. It's the blueprint for the building. And so looking at that, it tells you what was built.

10:20 So Intel source code -- and I'm going to show you some, I'll walk it through, I'll walk you through it so you can see how it works.

10:20 Intel source code described to me what I needed to know to determine whether or not the products infringed.

10:20 And I also reviewed an extensive amount of that source code. I was provided with a computer at my home that I used to securely log in to Intel's servers and access. There was a camera that watched me all the time. I think they saw some of my dogs.

10:20 Q. And would you have been able to access that source code outside the discovery process and litigation?

10:20 A. No. I would not.

10:20 Q. All right. And finally, what understanding of infringement did you apply?

10:21 A. Okay. So I applied the understanding that literal infringement occurs when all the claim terms are present. And then there's also the Doctrine of Equivalents. That's when all the claim terms are present or their equivalents.

10:21 Q. And what test did you apply for Doctrine of Equivalents?

10:21 A. The same test that Your Honor discussed this morning, which is even if an element is not literally present -- I'm sorry, yesterday morning -- there is still infringement of any structure if it performs substantially the same function in

substantially the same way to achieve substantially the same result as the claimed element.

Q. So we'll get into the details, but can you summarize your conclusions?

A. Sure. So I'm going to present a lot of analysis. And after that analysis, I'll present why I concluded that Intel infringes these two patents, and I'll also present some analysis about what these patents' value are to Intel.

Q. So let's turn to your technology overview, and we're going to be spending a lot of time talking about processors or chips. So can you tell us what a processor is?

A. Sure. So a processor, in general, is -- well, it's what runs your program. It's the brains of the computer. And it performs most of the data processing paths in the computer.

Q. What are some of the key components of a processor that are going to be relevant today?

A. So let's take the top off of that.

They are the cores. The cores are really the main workhorses. They process -- they really run the programs. Then there's -- uh-oh. My clicker stopped working. Sorry. The microprocessor in here's having problems.

There we go. It's back again.

So we have the cores that process information. Memory, that's what stores the information to process or that's already been processed.

10:23 You have a bus, which sounds like what it is. It moves information around. You have a clock that sets the speed of all the components. And then you have a voltage regulator, that's -- well, it's like a power company. It supplies reliable voltage.

Q. And how does a core run a computer program?

A. Yeah. This is the way I describe it to my students, is you can think of programs as just like a series of instructions in a recipe.

Computers aren't very bright, okay? I'm a terrible chef when it comes to baking, but I can make a cake by following the steps in a recipe. And that's exactly what programs are.

For example, Microsoft Excel has instructions that tell it how to add up numbers in a column.

Q. And you mentioned clocks. How do clocks set the speed of cores?

A. Okay. So the clock is what coordinates how quickly the instructions execute.

So this clock, in essence, it's like a conductor. It sort of synchronizes everything. And you can have clocks that run at different speeds. So one -- a low frequency clock would run instructions slow; a high frequency clock would run them fast.

Q. All right. You mentioned voltage. What's the relationship between voltage and power?

A. Okay. This is the analogy I use with my students.

10:24 It turns out electricity -- I don't know why people make it so
10:24 complicated. It's like water, okay? And here I'm showing
10:24 water going over a waterfall, and it's turning a waterwheel at
10:24 the bottom, so it's generating power for that waterwheel.
10:24 The height of that waterfall aboveground determines the
10:24 voltage. So if I instead had a taller waterwheel, that would
10:25 be a higher voltage and result in more power. And that's
10:25 really what we need to know.
10:25 Q. Is there a relationship between speed and power in a
10:25 computer?
10:25 A. Yes. There is.
10:25 And so this is kind of key, and I think you've heard some
10:25 about this already from Mr. Bearden. But of course, we want
10:25 low power. We want long battery life. We want things that
10:25 don't burn up in your pocket, like your cell phone. But you
10:25 also want things to go fast. And the problem is that they're
10:25 in direct competition with each other.
10:25 So if you use up more power, you have to go slower. If
10:25 you go faster, you're going to use more power. So they're in a
10:25 tug of war.
10:25 Q. Do engineers try to reduce the amount of power used
10:25 in computer circuitry?
10:25 A. They do.
10:25 Q. And why is that?
10:25 A. Well, because if you reduce the power, you can go

faster.

Q. How important is power savings in designing a processor?

A. It's extremely important, in fact.

Q. And has it been important in your working industry?

A. Yes. Throughout the -- all the processors that I've been involved with, power was a key consideration for us.

Q. All right. So what's the first patent you'd like to discuss today?

A. The first one is the '373, okay.

Q. Okay. And let's turn to Exhibit 1 on the following slide.

A. Okay.

Q. And we've seen this before. Can you just remind us about some of the information of the '373 patent?

A. Yeah. So the '373 patent, you just heard Mr. Bearden talk about. It was -- these are the inventors. The inventors worked at Freescale, and it was issued in, I believe -- well, I can't even read it -- 2009.

Q. Now, Mr. Bearden talked about the different parts of the patent. What part of the patent are you going to focus your analysis on today?

A. Yeah. So let me step back.

A patent has multiple parts, and you're going to get used to hearing this. It has a cover page, tells you who the

10:27 inventors are, right? And then after that, there's this
10:27 narrative that gives examples of the invention.
10:27 And all of that is just to lead up to the -- this end
10:27 part, and those are these claims. These are these numbered
10:27 sentences, and the numbered sentences define the invention.
10:27 Q. Now, why not focus on the abstract? Does the
10:27 abstract define the invention?
10:27 A. No. Not at all.
10:27 Q. Okay. So we'll be talking about the details, but at
10:27 a high level, what's the '373 patent about?
10:27 A. So this patent, in general, is about trying to trade
10:28 off and optimize or balance speed and performance.
10:28 Q. Now, we've already heard a little bit about
10:28 Freescale. Were you familiar with Freescale before your work
10:28 in this case?
10:28 A. Yeah. As I said, when I was at IBM, we were in a
10:28 cooperative agreement with Freescale on a kind of instruction
10:28 set. That is the -- you know, Intel has their x86 and
10:28 Freescale and Apple and IBM had their power PC, we called it.
10:28 Q. So what was the goal of the '373 inventors?
10:28 A. So the goal of the '373 inventors is described right
10:28 here in the patent. That is, they talked about -- let me just
10:28 read it. "For example, processors may operate at a maximum
10:28 voltage and frequency when peak performance is required, and
10:29 they may operate at a low voltage and frequency to reduce power

consumption. And, therefore, trade-offs can be made between performance and power."

So that's the goal, is to enhance those trade-offs.

Q. So can you help us understand what's at issue for those trade-offs between power and performance?

A. Yeah. And this is key.

What's at issue here is that when processors have a lot of work to do, the cores are all running, and they're all going to be consuming power, okay?

Q. So --

A. So -- I'm sorry.

Q. So what's one way to save power?

A. Well, one way to save power is to put some of those processors to sleep, so put this one to sleep and this one to sleep. Now, why might you want to put them to sleep? Because they're not doing anything. So why have them -- you know, why leave the lights on?

Q. So is it possible for all of the cores to go to sleep?

A. Yes, indeed. It's possible to put all the cores to sleep, and Intel actually gives us a name, so this is the first piece of jargon. You won't have a copy of my slides, I understand, so you might want to write this down. It's called Package C7. That is this deep sleep.

Q. Now, do engineers always use the term "sleep" when

10:30 they're referring to processors going to sleep, or do they use their own language?

A. There's a lot of different terms for that. Indeed.

THE COURT: Counsel, I want to -- whenever you are at a place where you think it'd be nice to break, it's fine with me, but we're going to take our morning break whenever you're at a point with the doctor where it makes sense, where you're about to start something new.

MR. HEINRICH: Okay. So I just started this, so it might make sense to just break here and then --

THE COURT: See, that was my sense as well.

Ladies and gentlemen of the jury, we're going to take our morning recess. We're going to start back up at -- that clock is wrong so I always have to translate. We're going to start back up at 10:45. Remembering my instructions not to discuss the case amongst yourselves, you are dismissed until that time.

THE BAILIFF: All rise.

(Jury exited the courtroom at 10:31.)

THE COURT: You may be seated. We need to take two things -- one thing up for sure, which is I want to make sure that VLSI gets to us the list of documents, exhibits that they think were admitted yesterday, if that has not been done. I'm not sure if it has. I don't think so.

The other is, Mr. Lee, is this a good time to take up the issue that you raised earlier this morning for this witness?

10:32 THE WITNESS: Your Honor, may I step down off the witness stand?

10:32 THE COURT: Yeah. I'm sorry. Yes, sir. Of course. Thank you. I should have said that to you.

10:32 MR. LEE: Your Honor, the claim chart is the 1006 exhibits. I don't know if Mr. Heinrich is close to where he plans to offer those.

10:32 MR. HEINRICH: Yeah. And just to be right up front, I was planning on doing that at the very end, after Professor Conte's gone through his analysis.

10:32 THE COURT: That's fine. That works just fine with me. Whatever you want to do is fine with me.

10:32 So then let's do this. Are you going to have him on the stand through lunch?

10:32 MR. HEINRICH: Oh, yes. Yes.

10:32 THE COURT: I'm sure the jury is -- will be thrilled by that.

10:32 (Laughter.)

10:32 THE COURT: And so let's do this. We will go forward. We'll take our break at roughly lunchtime.

10:32 Whenever we come back, we'll take up this issue before I bring the jury back in and that will give them a little bit of extra time.

10:32 Mr. Chu, did you have something you wanted to add?

10:33 MR. CHU: I believe the exhibits that were referred to

10:33 yesterday were Exhibits 1 and 2, the two patents, and another one of them, Exhibit, I think 4, which is just the digital copy. And I assume there also won't be an objection to Exhibit 5, again the digital copy for the second patent.

So that's where we are in the exhibits.

THE COURT: Very good.

MR. CHU: A practical question. I noticed that Professor Conte was having sunlight coming into his eyes, and I don't know whether we can do much about it, except maybe it's -- looking at the faces of some of Your Honor's court staff, I guess we will wait until the afternoon for it to fix itself.

THE COURT: Yeah. I don't know how we fix the sunlight. And I've never had anyone raise that issue. Is it made worse because of the Plexiglass?

MR. CHU: I do not know. I know -- I just saw him a number of times, it would be on part of his face and he'd move his head to try and dodge the sun rays.

THE COURT: Do you have a solution, which I'm happy to --

MR. CHU: I don't. Maybe I will write a letter to the General Services Administration.

(Collective laughter.)

THE COURT: Does he want to put a hat on? I've got a cowboy hat in the back.

MR. CHU: Yeah. Well, we'll work it through and maybe --

10:34 THE COURT: Yes, sir. Doctor?

10:34 THE WITNESS: Your Honor, if you can cover the Plexiglass on just this side, I don't think the jury needs to see me. That would stop the sunlight.

10:34 THE COURT: We'll get it -- we'll find a sheet or something we'll put up on that side. That's why I was -- I figured you sitting there might know. I couldn't tell which way the sun was coming in.

10:34 But if you're having a problem with that, thank you for bringing it to our attention. We'll find something at the break to cover that side of the glass, and that will make everyone happy.

10:35 MR. CHU: Great.

10:35 THE COURT: That's what I'm here for, is to make everyone happy. And get a high Yelp review.

10:35 So is there anything else, Mr. Chu, that we need to take up?

10:35 MR. CHU: No.

10:35 THE COURT: Mr. Lee?

10:35 MR. LEE: Nothing, Your Honor. Thank you.

10:35 THE COURT: Okay. Let me ask you all this: Currently it appears to me -- maybe it's because we are able to present this by phone, and I know people are listening, but I think we've had fewer people attend than I had anticipated, I guess because they are able to listen in without coming personally.

10:35 Would it benefit either side to have one or two more people in the courtroom while the trial's going on? We might have to change that if we get a rush of people, but I see no reason -- I mean, we've got a total of maybe ten people in the -- and I think we could easily have four or five more people spread out.

So if either side would like to add two people per side who would stay in the courtroom during the trial, unless something changes with the number of people who come in, I don't see any health risk in doing that. I'll expand the number of people by two.

MR. CHU: Thank you very much, Your Honor.

THE COURT: Mr. Lee?

MR. LEE: I think that's fine, Your Honor. As long as we monitor it. But if we have a rush from the -- to the public area for the public, as long as we keep the numbers down.

THE COURT: If we have a rush for that, then we'll worry about that. I really thought we'd have issues with the number of people who attended. And like I said, I think the phone deal has been wonderful.

I know a number of people are able to listen in. And so -- and why wouldn't they with lawyers as good as you? If I were practicing, I would be doing the same thing. So each side can have two more folks in the courtroom, and that shouldn't be a problem at all.

10:36 MR. CHU: Thank you very much, Your Honor. We appreciate it.

10:36 (Recess taken from 10:36 to 10:48.)

10:48 THE BAILIFF: All rise.

10:48 THE COURT: Please remain standing.

10:48 (The jury entered the courtroom at 10:48.)

10:48 THE COURT: Welcome back. You may be seated.

10:48 Doctor, is that better?

10:48 THE WITNESS: It is, and it's very colorful.

10:48 THE COURT: We're trying to protect our witnesses from the sun, which I -- after two and a half years, I didn't realize we had a sunlight problem. But it was brought to my attention, so try and ignore the colorful blanket that we put up there and focus on what the good doctor's saying.

10:48 You may resume your direct.

10:49 MR. HEINRICH: Thank you.

10:49 BY MR. HEINRICH:

10:49 Q. So right before the break, we were talking about this Intel sleep state called Package C7.

10:49 A. Yes.

10:49 Q. How often do the Intel processors go into that sleep state?

10:49 A. You'd be surprised to know it, but they go into it hundreds of times per second. So they actually deep sleep. It's a little bit like my students probably do when I lecture.

Their eyes glaze over.

Q. Now, can we just snap our fingers and put a core to sleep any time we want?

A. No, we can't. And here's the deal on that.

So the cores, when they go to sleep, they're going to forget where they left off. So they have to write a Post-It to themselves, in essence, so that when they wake back up they can pick up where they left off.

So you take that and what you do is you -- if you're a core, you write where you left off into the memory here before you go to sleep. And then when you wake back up, you use that memory to figure out where to pick up.

Q. And what does Intel call that memory?

A. Okay. So today we will be facing a barrage of Intel jargon, and this is the first one. This is C6 SRAM is the name for that. Improbable. That stands for -- SRAM is static random access memory.

Q. Now, is it a good idea to put this C6 SRAM memory to sleep?

A. No. That's a bad idea.

Q. Why is that?

A. Well, if you put that to sleep, then when the cores wake up, they won't know where they left off and your computer crashes.

Q. Now, are there other computer circuits aside from

cores that can be put to sleep?

A. Yes, there are.

Q. And what are some examples?

A. So, for example, if the cores are asleep, then you don't need the bus anymore because there's nobody asking to move information around. So you don't have those lights on and you save power.

Q. Can you save a lot of power that way?

A. Yes, you can.

Q. Now, did the Freescale inventors identify complications when building circuits that can be put in these sleep or standby states?

A. They did.

Q. And can you explain that for us?

A. Yeah. Here it is from the patent: "However, note that different types of circuitry within a data processing system may have different ranges of allowable operating voltage."

Q. And why does that raise complications?

A. So that raises complications because memory, if you lower the voltage on memory, you'll forget, for example.

Q. And can you illustrate that for us?

A. Yeah. So here's an example here. And I've put together some pieces. You're going to see a variant of this as we go on. So here's a voltage meter here. And here I show the

operating voltage.

Now, imagine you want to put this circuit here to sleep. What you do is you lower that voltage, right? But the problem is you lower the voltage too on the memory, so the memory's going to forget. So again, then the cores can't wake back up and your computer crashes.

Q. Why not just put each chip component on its own voltage source?

A. Well, each one of these is like a power company, so that'd be like having a power company per house in a neighborhood.

Q. Now, can you walk us through the Freescale solution using Figure 1 of the patent?

A. I can. And here it is. And you'll see here, here's that thing we just saw, voltage, and here's the memory and here's the circuits. Let me pop that out of there.

And what the Freescale engineers did was they added this as a selector and now a second voltage regulator, which I'm always going to show in orange so you know what it is.

And that one's there so that when you go ahead and you want to put this circuit to sleep, the selector moves over to that and it gives power to the memory but only the memory, so that this big circuit can go to sleep.

Q. Was this power savings solution that the Freescale inventors came up with a conventional approach or an

10:53 unconventional approach?
10:53 A. Yeah. I think Mr. Bearden mentioned this. It was
10:53 unconventional.
10:53 You see, the conventional wisdom is really to save power,
10:53 to have less circuits, right? I mean, if you want to save
10:53 power, you don't put in things that use power.
10:53 But what the Freescale engineers actually did was they
10:53 added circuits and ultimately showed it saved power.
10:53 Q. Now, is the jury going to hear any argument from
10:53 Intel in this trial that the Patent Office made a mistake in
10:53 issuing the '373 patent?
10:53 A. No, they won't.
10:53 Q. Okay. Let's turn to your claim analysis.
10:53 A. Okay. Here we go.
10:54 Q. And what is a claim analysis?
10:54 A. So this is where I'm going to step through the
10:54 claims, each and every element. And for each one I'm going to
10:54 show you where I found evidence of that.
10:54 Q. What claims are you going to focus on today?
10:54 A. Okay. I'm going to focus on the asserted claims,
10:54 which are Claims 1, 5, 6, 9 and 11.
10:54 Q. And what Intel products did you compare those claims
10:54 to?
10:54 A. So the --
10:54 MR. LEE: Your Honor, I object. There's confidential

information on the bottom of the slide. We discussed the units with Your Honor before. We either have to seal the courtroom or --

(Clarification by Reporter.)

MR. LEE: I'm sorry. We've addressed the confidentiality of this precisely before. So we either need to seal the courtroom, which is fine with us, or the number needs to come off.

MR. HEINRICH: He doesn't need to say the number.

THE COURT: And the jury can't see --

MR. LEE: The number's on the screen. It's on the screen for the public at this particular moment in time.

THE COURT: Well, is the number on the screen that you can see above your head, Mr. Lee?

MR. LEE: There's nothing on the screen any longer.

THE COURT: If you're going to publish that demonstrative, you can publish it so that only the jury can see it and the witness can see, but not the public.

Mr. Lee, does that satisfy you?

MR. LEE: Yes. I think that's the way to deal with it, Your Honor.

THE COURT: Okay.

BY MR. HEINRICH:

Q. So what are the products that you compared to the claims?

10:55 A. They are -- so Intel has code names for their products. And these are Haswell and Broadwell. And these sold -- I'm not sure I can say that.

Q. You can skip that --

A. Okay.

Q. -- since it's on the screen for the jury.

When was Intel developing the first products that you're analyzing under the '373 patent?

A. They were developing these in the 2008/2009 time frame.

Q. All right. And what claim are we going to start with?

A. So we're going to start with Claim 9. And here it is, but I'm not going to use the way it appears in the patent because, well, although it's nice that it indents each of the elements this way, it's really hard for me to work through it. I'm going to take that same text, and I'm going to put it into a table like this. It's the same text I've just put into a table, and then we'll discuss each of the elements as I go down.

Q. Okay. So let's start with --

MR. LEE: Your Honor, there's nothing on the screen. There's nothing on the screens on the table.

THE WITNESS: Nor are the jurors.

MR. HEINRICH: I think it's still off. Can you see that

now?

THE WITNESS: No.

(Off-the-record discussion.)

THE WITNESS: So your monitors have gone to sleep.

(Laughter.)

JUROR: Got it.

BY THE WITNESS:

A. Okay. So let me go back.

This is how the patent appears -- I'm sorry -- the claim appears in the patent. And although it's nice that it indents each of these elements, it's kind of hard for me to work through. So I'm going to take this text and I'll put it in a table here. It's the same text, but this way we can walk through each and every element.

BY MR. HEINRICH:

Q. So the first part of the claim says "an integrated circuit." And was there confirmation from -- testimony from an Intel engineer on that?

A. Yes. I think it was likely pretty easy for him to admit. This is Intel engineer Robert Hayes and --

THE COURT: Excuse me, Doctor.

MR. LEE: Your Honor, this is subject to Your Honor's ruling about the testimony ultimately being offered.

THE COURT: May I look over your shoulder?

THE WITNESS: You may, sir.

MR. LEE: It's just deposition testimony, Your Honor. It was representation that they intend to offer that subsequently is fine.

THE COURT: Well, I think -- Mr. Lee, I think what I heard VLSI's counsel tell me this morning is they understood my ruling, and that they're going to offer all -- everything that they rely on with this witness, they are going to offer in the form of deposition testimony at some point in the trial.

MR. LEE: Okay. That's fine.

MR. HEINRICH: Thank you.

BY MR. HEINRICH:

Q. And this is Slide 43?

A. It is. And just to begin again, this is Intel principal engineer Robert Hayes. And so he was asked, "Is Haswell a standalone integrated circuit?"

And he says, "Haswell is a standalone integrated circuit. Yes. Haswell would be a standalone integrated circuit."

Then he was asked, "Is Broadwell a standalone integrated circuit?"

And then he replied, "Broadwell is a standalone integrated circuit, yes."

And later on, I understand, you'll hear him actually say these words.

Q. Okay. So let's turn to the next claim element.

A. Okay.

Q. And what is that?

A. So that claim element has two pieces, so I'm going to break them up. I'm going to start with "a memory that operates using an operating voltage."

Q. Okay. And what did you find for that?

A. Yes. So Intel has that. As I already discussed, it's called the C6 SRAM. Here's Intel engineer -- or Intel fellow, Jonathan Douglas, and he stated, "I believe all the '373 accused products have a C6 SRAM... Yes, I believe it's an SRAM memory array."

Q. Okay. Let's turn to the next part of Element A.

A. Okay. So this one is, "wherein the memory is characterized as having a minimum operating voltage."

In other words, you got to keep power on the memory and you got to keep above this.

Q. And did you consider testimony from Mr. Douglas on that as well?

A. I did. And so actually what he does is he restates the question and answers it.

So he says, "Is there a voltage where, if it goes below some point on a product, one or more of the components within the C6 SRAM array would not function properly?" And he said, "That is correct."

Q. So what did you conclude for Element A?

A. I concluded that's present as well, so I put a check

box there. And here's what I'm going to do. I also wrote over here as sort of a reminder that that's a C6 SRAM.

Q. Okay. What's the next claim element?

A. The next one is "a memory location that stores a value representative of the minimum operating voltage."

Q. And do Haswell and Broadwell have a memory location that stores such a value?

A. They do.

Q. And how do you know?

A. I looked at Intel documents.

Q. Anything else?

A. And testimony as well. And also I examined the source code.

Q. Okay. So let's turn to Exhibit 3662. And what is this document?

A. Okay. So this is the first of a lot of documents like this you're going to see --

THE COURT: Doctor --

MR. LEE: Your Honor, this is -- this document is confidential.

MR. HEINRICH: Okay. So maybe from here on out we should just display the documents to the jury and counsel.

THE COURT: Mr. Lee, will that satisfy you?

MR. LEE: As long as it's no one reading from the documents, yes.

11:02 MR. HEINRICH: Okay. Then there's going to be a lot of -- maybe we should seal the courtroom at this point, because there's going to be a lot of Intel information from here on out.

11:02 THE COURT: I'm happy to do that.

11:02 We'll seal the courtroom. If you are not under the protective order, you'll need to leave. And we'll need to make sure that the phone communication that's going out publicly is cut off for this period.

11:03 If you are listening in, the jury -- so you know, this is being broadcast by phone. People all across the United States are listening in to this trial, wishing they had your seats on the jury and could be here. And so we are going to cut that feed off at this time, and we'll resume it when we ]unseal the courtroom.

11:47 (Sealed proceedings.)

11:47 THE COURT: I'm going to go ahead and just keep going, start with the next patent. But we'll open the courtroom until lunch. So...

11:47 MR. HEINRICH: Is there a preferred lunchtime you have?

11:47 THE COURT: Wherever you -- there's not. So wherever you feel comfortable taking a break, I'm pretty good.

11:47 MR. HEINRICH: Okay. Great.

11:47 THE WITNESS: Actually, Your Honor, could we take a break now if you don't mind?

11:47 THE COURT: Well, listen, as far as I'm concerned, we can take a break now and just then get started back up at 1:00. So that's fine. Let's do that.

11:47 Ladies and gentlemen, remembering my instructions not to discuss the case amongst yourselves, we're going to stand in recess now until 1 o'clock. Thank you.

11:48 THE BAILIFF: All rise.

11:48 (Jury exited the courtroom at 11:48.)

11:48 THE COURT: You may be seated. Thank you.

11:48 Did you want to step down?

11:48 THE WITNESS: Thank you, sir.

11:48 THE COURT: So what I would suggest we do is take an hour for lunch and then bring this gentleman back, and in an hour we take up the issues Mr. Lee wanted to take up.

11:48 Does that work, or is there a better way to do it?

11:48 MR. HEINRICH: That sounds perfect.

11:48 THE COURT: Mr. Lee, are you okay with that?

11:48 MR. LEE: That's great, Your Honor.

11:48 THE COURT: So is there -- leaving that issue with the doctor aside, is there any other issue from VLSI's point of view we need to take up?

11:49 MR. HEINRICH: No.

11:49 THE COURT: Mr. Lee?

11:49 MR. LEE: No, Your Honor.

11:49 THE COURT: Okay. Then we're in recess.

11:49 We'll be back at 12:45, and we'll take up the issues of the 1006 before us.

11:49 THE BAILIFF: All rise.

11:49 (Recess taken from 11:49 to 12:50.)

12:50 THE COURT: Thank you. You may be seated. If you'd like to recall the witness to the stand.

12:50 Well, it was cold in here this morning, and I feel like it's getting warm now.

12:51 If you would tell the Court what it is you intend to do with this witness, and then I'll hear from Mr. Lee as to why he objects.

12:51 MR. HEINRICH: So at the end of our claim analysis of the '759 patent, I'm going to ask him about two exhibits, 4418 and 4419.

12:51 THE COURT: Do you have those available?

12:51 MR. HEINRICH: Yes.

12:51 THE COURT: Thank you, sir.

12:51 MR. HEINRICH: Thank you.

12:51 THE COURT: Okay. I've got, you said 4418?

12:51 MR. HEINRICH: Right.

12:51 THE COURT: I'm looking at it.

12:51 MR. HEINRICH: Yes. That's our 1006 chart for his infringement opinion on the '373 patent, and it is a summary of very voluminous materials that basically just summarizes the evidence that he considered without any argument per the rule.

12:52 THE COURT: And was all of this disclosed to the Court?

12:52 MR. HEINRICH: Yes. We took the exhibits from his report, and what we did is we simply deleted any argument from them.

12:52 THE COURT: Mr. Lee?

12:52 MR. LEE: Your Honor, can I do it from here?

12:52 THE COURT: Wherever you care to.

12:52 MR. LEE: Your Honor, that document you have now has citations and quotations of depositions that have not been offered during the course of his testimony. And his notes, as far as I know, are not going to be offered.

12:52 It has the exhibits that were in his report but that have not been offered and not been identified to us as exhibits that are going to be offered. And it has references to a host of other materials that are not going to come into evidence.

12:53 THE COURT: Got it. Counsel, my concern isn't with the format of the exhibit. My concern is anything that's contained in either of these exhibits that the jury hasn't actually -- where either the doctor hasn't testified about them or the -- you're not going to provide that evidence to the jury for their consideration.

12:53 I'm sympathetic to Mr. Lee's position that essentially you are kind of bootstrapping in evidence through this document that is not -- the jury hasn't actually considered.

12:53 I get that that the doctor's considered it. I understand that. But the jury will not have heard -- the jury won't have

heard this evidence themselves, and yet they might -- if they, when they -- if they were to get this document back in the jury box they might read through and say, "oh, the doctor considered all this information."

They're not -- they're certainly not going to understand and be able to decide whether or not they heard it themselves.

MR. HEINRICH: So we'd certainly be willing to redact or delete references to evidence that was not brought up during his direct, and we could submit a replacement version of these exhibits.

THE COURT: Mr. Lee, assuming whatever is in the -- I'm just going to say the amended PTX-4418, if it includes only information that the doctor -- either that the doctor testified about during the trial as having considered or that the plaintiff puts into evidence.

MR. LEE: Your Honor, that becomes just a demonstrative at that point in time, and the other demonstratives are not going back. I mean, the jury has all testimony that Dr. Conte provided today and their memories of it. They have the actual exhibits that he identified, which will go in because they were without objection.

THE COURT: Let me hear a response to why it should not just be a demonstrative.

MR. HEINRICH: Well, I -- it's -- it's Rule 1006, because it really is for this purpose. And I have a suggestion, which

is: I can, in my examination, simply establish a foundation for these exhibits, and then we can do briefing on their admissibility.

THE COURT: I think that's wise. Knowing that -- knowing that -- because I'm not going to admit them at this time, until after I consider the briefing, and know that in terms of your briefing, the only thing I intend to allow to be in these exhibits is information either that you specifically -- for example -- I don't know this well enough -- if you ask the doctor a question and, however he does it, he puts that information into -- through him, where they can cross-examine him in front of the jury, then it's -- I'm going to allow it in here.

If it is deposition testimony that you, as we discussed earlier, play for the jury, I'm going to allow this -- I'm going to allow that also to be in this exhibit.

I'll then take up, after I get the briefing, whether or not I will allow the exhibit in as a demonstrative or as a actual exhibit.

MR. HEINRICH: Excellent. Thank you.

THE COURT: Mr. Lee, are you satisfied with that?

MR. LEE: We are, Your Honor. Thank you.

THE COURT: And my understanding is that at least the next little tranche of his testimony will not be confidential; is that correct?

12:56 MR. HEINRICH: Correct.

12:56 THE COURT: Okay. I'll leave it up to you and Mr. Lee to signal to me when you are shifting into that which is sealed. But for the moment, I'm going to allow anyone into the courtroom who wants to listen to it, and we're going to go back to where it is being broadcast telephonically.

12:57 MR. HEINRICH: Very good. Thank you.

12:57 THE COURT: And, Mr. Lee, are you okay with that?

12:57 MR. LEE: That's good, Your Honor.

12:57 THE COURT: Okay. Is there anything else we need to take up be before we bring the jury in?

12:57 MR. HEINRICH: Not from VLSI.

12:57 THE COURT: Mr. Lee?

12:57 MR. LEE: Not from Intel, Your Honor.

12:57 THE COURT: It's slightly -- give me one second. I'm going to step off the bench.

12:57 We're going to collect the jury. We'll bring them back in, and you're welcome to just remain there if that's convenient for you.

12:57 THE WITNESS: Yes, sir.

01:00 THE COURT: Okay. Thank you, all.

01:00 THE BAILIFF: All rise.

01:00 THE COURT: Please remain standing for the jury.

01:00 (The jury entered the courtroom at 1:00.)

01:00 THE COURT: Thank you. You may be seated.

01:00 Counsel, you may proceed with this witness.
01:00 MR. HEINRICH: Thank you.
01:00 Good afternoon, ladies and gentlemen.
01:00 BY Mr. Heinrich:
01:00 Q. So, Professor Conte, can you just recap from where we left off at lunch and provide a summary of the invention of the '373 patent?
01:01 A. I'd be happy to.
01:01 So again, what the invention added was the second voltage regulator and this mux, and what it enables is really that you can put this circuit to sleep because you can switch over here and retain the memory by switching over to a second voltage supply.
01:01 So mux, Intel has that. Second voltage supply, Intel has that. They switch, et cetera.
01:01 Q. Thank you very much.
01:01 So let's turn next to the '759 patent. And can you give us a roadmap of what you'll be discussing for the '759?
01:01 A. Yes. I'd be happy to.
01:01 So what I'm going to do is I'm going to talk about the '759, and then I'll talk about Intel Speed Shift. Then I'll present my claim analysis like I did for the '373, and then I'll discuss the patent's value to Intel.
01:02 Q. Okay. Why don't you give us some background on the '759 patent?

01:02 A. Okay. So the patent was filed in 2005, and it issues
01:02 in 2010. Matt Henson is the inventor, and it's assigned to
01:02 SigmaTel. And it's about balancing speed and power.
01:02 Q. Can you tell us more about the inventor, Matt Henson?
01:02 A. Matt Henson received his electrical engineering
01:02 degree from Carnegie Mellon, then went on to work for
01:02 Freescale, then SigmaTel as the director of architecture, then
01:02 XWare as the CTO, and then LiveMosaic as the founder. And he
01:02 passed away in 2011. I think he was in his mid-30s.
01:02 Q. Now, were you familiar with SigmaTel before your work
01:02 in this case?
01:02 A. Oh, yes. I've had past students who worked for
01:02 SigmaTel. And so what SigmaTel did was they created integrated
01:03 circuits that went into television, laptops, desktops, set-top
01:03 boxes, MP3 players, et cetera.
01:03 Q. Now, what problem was Matt Henson trying to solve
01:03 that led to the '759 patent?
01:03 A. So it tells you here in the patent, "Accordingly,
01:03 there is a need for an improved system and method of
01:03 controlling a clock frequency in an electronic device in order
01:03 to selectively deliver faster clock speeds."
01:03 Q. Now, was that a problem just for MP3 players, or was
01:03 that a broader problem?
01:03 A. No. That's a broader problem. And I should say at
01:03 that time, when he was talking about MP3 players, that included

01:03 the first iPhone. These are really computing devices. They
01:03 are really minicomputers.
01:03 Q. And is the solution that's claimed in the '759 patent
01:03 a solution just for MP3 players?
01:03 A. No. It's applicable to general computer systems.
01:04 Q. So take us back before Mr. Henson's invention. What
01:04 was the conventional way of controlling speed on computers?
01:04 A. Okay. So the old way to do it was that you had the
01:04 operating system, like Windows, control the speed, and it would
01:04 tell the hardware what speed to run at. And Windows, of
01:04 course, is running your whole computer, it has many things to
01:04 do. It's running your programs and all of this.
01:04 If you take those speed instructions and you make them too
01:04 complicated, what'll happen is it'll slow down all your
01:04 programs, right? It's intrusive.
01:04 And also those instructions have to wait in line after
01:04 everything else Windows does before it can do it. So it's --
01:04 it takes awhile to get around that loop. And as we'll see, it
01:04 could do it at most three times a second, I think it was.
01:04 Q. Now, despite these limitations, was it in fact the
01:04 conventional wisdom to use an outside operating system, like
01:05 Windows, to control speed?
01:05 A. It was. So, for example, here is a research paper
01:05 from 2000. This is PDX-3695. The author of this paper is the
01:05 gentleman who's Intel's expert, Dirk Grunwald. And he talks

about "we believe that the decision to change processor speed and voltage must be controlled by the operating system."

Q. Well, what did Mr. Henson do that was different from this conventionalism?

A. So what Mr. Henson did, and I'll show that in a moment, but what he did was he ultimately came up with a way to do this in hardware.

Q. Can you explain?

A. Yes. So let me show you with the patent itself. So here's Figure 1 of the patent. And what Mr. Henson did was he introduced this dedicated controller, and it was the dedicated controller inside that then had the responsibility for speed and power control.

Q. So can you walk us through and help us explain the invention -- help us understand the invention using the figure?

A. Yeah. So the patent teaches that there are these things called multiple master devices. Okay. That is, in essence, cores. And each master device can be doing different things, like cores.

The master devices are connected on a bus to communicate. The master devices in the bus are connected to a clock circuit, which sets their speed. And there's a dedicated programmable controller, which in the art we call a microcontroller, that adjusts the system.

Q. And how does that programmable controller or

microcontroller adjust speed?

A. So here's an example I prepared.

So first step is the master device requests a speed adjustment. Next, the microcontroller decides whether or not to adjust the speed. It might decide not to, for example, if there's other things it knows about.

If it decides to adjust the speed, it instructs the clock controller -- well, actually the clock controller is part of -- includes the microcontroller, but it instructs the clock circuit to adjust the speed of the master devices. And because they're now moving faster, it might elect to adjust the speed of the bus.

Q. So how does the '759 invention compare to the old approach?

A. Well, the conventional wisdom was, as you've heard before, adding hardware uses power, so don't add hardware. And Matt Henson didn't just add a little hardware. He added a lot of hardware. He added pretty much a computer in a computer to do this control.

And what ended up is a system that's far more responsive, less intrusive and more power efficient than the old approach.

Q. Okay. So let's turn to Intel's Speed Shift technology. At a high level, can you explain the components that we'll be talking about?

A. Yes. I'd be happy to.

01:08 So there's several components in play. There are cores, the bus, the clock circuit and what's called -- we've heard about this, by the way, in the '373 -- this PCU. That's power control unit, and it includes a microcontroller.

Q. So let's pull up Exhibit PTX-1949-NAT. And can you tell us what exhibit this is?

A. Yeah. So this is a presentation by Intel. It's called "Intel Architecture, Code Name Skylake Deep Dive: A New Architecture to Manage Power Performance and Energy Efficiency," by Efraim Rotem.

Q. So let's go to Page 5 of this exhibit. And did this Intel document help guide your analysis?

A. It did. What I'm going to do is actually use this figure, so let me take out the things we don't need to talk about because they're not relevant to the patent, and blow it up.

Q. And can you use this simplified figure to walk through the operation of Speed Shift?

A. Yes. So here's how this works. The core requests a speed adjustment -- sorry. It's right after lunch.

The core requests an adjustment, a speed adjustment, and what it does is it sends a signal, and I'll show you that signal, called "Core_Active" to the PCU.

Now, the PCU has decision code to decide whether or not to shift the speed. If it decides to shift the speed, it will,

for example, speed up the cores and then it might also decide to speed up the bus, because the cores are communicating faster.

MR. HEINRICH: Okay. And at this point we're going to be turning to some Intel confidential information, so we'd request -- Intel requests the Court be sealed.

THE COURT: Okay. That's fine. We'll clear the courtroom, unless you're under the protective order, and we'll shut off the feed.

(Sealed proceedings.)

MR. HEINRICH: Subject to the issues that we discussed on the Rule 1006 exhibits, those are my questions for my direct.

THE COURT: Mr. Lee, might I suggest we take a short break before you begin?

MR. LEE: That'd be great, Your Honor. We can get set up and get the notebooks there.

THE COURT: Very good.

Ladies and gentlemen, it's about 2:15. We will resume at 2:30. Remembering my instructions not to discuss the case amongst yourself.

THE BAILIFF: All rise.

(Jury exited the courtroom at 2:13.)

THE COURT: You can step down, Doctor.

Ladies and gentlemen, Mr. Lee, do you have all of your -- how much of your cross do you anticipate being under seal?

02:13 MR. LEE: I'm sorry, Your Honor. I couldn't hear.
02:13 THE COURT: I'm trying to figure out whether we can let the audience back in for part of this cross, or what we're going to do.
02:13 MR. LEE: Can I take a quick look, Your Honor?
02:13 THE COURT: You absolutely can.
02:13 MR. LEE: Your Honor, we have a good 20 minutes or 25 minutes that are on the public record we could get back in.
02:14 THE COURT: Very good. So when we -- for the record, when we come back in, until Mr. Lee identifies where we're going into a sealed area, it'll be on the public record, and phone access will be maintained.
02:14 MR. LEE: Thank you, Your Honor.
02:14 THE COURT: What I do want to do before tomorrow is, I'm concerned about balancing and protecting Intel's information with the public's right to be able to hear some of this trial. And tomorrow I'm concerned at how much -- I'm anticipating how much is going to be sealed with respect to the damages testimony.
02:14 MR. LEE: And, Your Honor, it actually has confidential information, both Intel and VLSI. Your Honor will recall from the openings, there is a significant amount that they've designated as confidential. So it's a task for both of us.
02:15 THE COURT: Okay. I will express my concern at how much of this we're not being allowed to make public. And I

02:15 understand why we're not doing it, but tomorrow we need to
02:15 figure out a way to make as much of it public as we can.
02:15 MR. LEE: Your Honor, this is just something we've done in
02:15 other cases, particularly in the damages portion. If we could
02:15 ensure the public can't see the monitors for our two tables,
02:15 it's very easy to prepare to say I'm putting Slide 7 on the
02:15 screen now. I'm not going to say the number but His Honor and
02:15 the jury can see the number and get the witness to address it
02:15 without addressing the number.
02:15 THE COURT: I want to do as much of that as possible
02:15 tomorrow where we limit the access. Because of course publicly
02:15 they won't see the slide no matter -- they won't see the
02:16 exhibit no matter what. If someone is in the courtroom, we can
02:16 make sure it's not being shown on the public TV and it's only
02:16 being shown to the jury and relevant people.
02:16 But I want you all to work as hard as you can to make as
02:16 much of tomorrow's direct and cross-examination public, because
02:16 I -- this is -- as you know, this case has received a fair
02:16 amount of attention. And so I want it to be -- as much of it
02:16 as possible for the public. So whatever the result is, I want
02:16 people to be able to understand why the result was what it was.
02:16 So I think that's a goal that we all share.
02:16 Anything we need to take up for VLSI, Mr. Chu?
02:16 MR. CHU: No, Your Honor.
02:16 THE COURT: Mr. Lee?

02:16 MR. LEE: No, Your Honor.
02:16 THE COURT: Okay. We'll be back in just a few minutes.
02:16 (Recess taken from 2:16 to 2:36.)
02:36 THE BAILIFF: All rise.
02:36 THE COURT: Please remain standing.
02:36 (The jury entered the courtroom at 2:36.)
02:36 THE COURT: You may be seated.
02:36 Mr. Lee, are you prepared to move forward?
02:36 MR. LEE: I'm prepared to proceed, Your Honor. Can I proceed?
THE COURT: We both said it at the same time, yes, sir.
MR. LEE: Thank you, Your Honor.
THE COURT: You're free to proceed.

CROSS-EXAMINATION

BY MR. LEE:
02:36 Q. Good afternoon, Dr. Conte.
02:36 A. Good afternoon.
02:36 Q. Now, Dr. Conte, for the last few hours you have shown the jury a number of different documents, correct?
02:36 A. Yes.
02:36 Q. Many of them are from Intel --
02:36 (Clarification by Reporter.)
02:36 BY THE WITNESS:
02:36 A. Sorry, I hit the off button.
02:36 BY MR. LEE:

02:37 Q. Okay. Why don't you do a test to see if we can hear?
02:37 A. Okay. For the record, I said good morning -- or good afternoon.
02:37 Q. Good afternoon to you.
02:37 So to back up, during the last three hours or so you have shown the jury a number of documents, correct?
02:37 A. Yes.
02:37 Q. Many from Intel, correct?
02:37 A. Yes.
02:37 Q. They include source code, correct?
02:37 A. Yes.
02:37 Q. Schematics, correct?
02:37 A. I don't believe I showed schematics.
02:37 Q. Specifications?
02:37 A. Yes.
02:37 Q. Articles describing documents, correct?
02:37 A. Yes.
02:37 Q. Marketing materials, correct?
02:37 A. Yes.
02:37 Q. Testing documents, correct?
02:37 A. Yes.
02:37 Q. They were all Intel documents, correct?
02:37 A. Yes.
02:37 Q. Now, you described earlier this series of events and problems that were being addressed by the '759 patent, correct?

02:37 A. Yes.
02:37 Q. You described the work being done at SigmaTel that led to the '759 patent; is that correct?
02:38 A. Uh-huh.
02:38 Q. Is that right?
02:38 A. Yes.
02:38 Q. Now, in describing that work to the ladies and gentlemen of the jury, you didn't show them a single document from SigmaTel, did you?
02:38 A. No.
02:38 Q. You didn't show them a specification, correct?
02:38 A. Well, I showed the patent specification.
02:38 Q. Other than the patent, you did not show them any internal specification from SigmaTel, correct?
02:38 A. That's correct.
02:38 Q. You did not show them any source code from SigmaTel, correct?
02:38 A. Correct.
02:38 Q. You did not show any internal documents describing the implementation of the invention, correct?
02:38 A. That's correct.
02:38 Q. You did not show the jury any documents from SigmaTel testing the benefits of the invention, correct?
02:38 A. That's correct.
02:38 Q. You did not show the jury any documents from Intel --

I'm sorry -- from SigmaTel describing in narrative terms the benefits of the invention, correct?

A. That's correct.

Q. So all the documents you showed today were Intel documents describing features that have been developed by Intel's engineers, correct?

A. And marketing material, but yes.

Q. And you showed no documents describing the process by which the '759 patent came to be, correct? Other than the patent?

A. Are you referring to -- oh, I thought you were referring -- no. Yeah, that's correct.

Q. All right. And you were here when Mr. Bearden testified about the '373 patent, correct?

A. Yes.

Q. And similarly, there were no documents shown to the jury about testing the benefits of the '373 patent, correct?

A. Do you mean documents from Freescale?

Q. Yes. Documents from Freescale that would be doing the same types of tests that Intel did on its own products.

A. I'm sorry. I don't quite -- can you restate?

Q. Sure. You were here for Mr. Bearden's testimony, correct?

A. Yes.

Q. He described the process by which the Freescale folks

02:40 came to make the invention, correct?
02:40 A. Yes.
02:40 Q. During the course of providing that description, he
02:40 didn't describe any testing of the benefits of the '373 patent,
02:40 correct?
02:40 A. I believe that's correct.
02:40 Q. Right. None of the type of testing that Intel has
02:40 done on, for instance, its products, correct?
02:40 A. He didn't describe any. Correct.
02:40 Q. And you didn't show the ladies and gentlemen of the
02:40 jury anything like that, correct?
02:40 A. Correct.
02:40 Q. All right. So let me go back, step back a little
02:40 bit, Dr. Conte.
02:40 I think you told us that you've been retained to testify
02:40 on behalf of VLSI LLC, correct?
02:40 A. That's right.
02:40 Q. Now, you submitted an expert report in July of last
02:40 year, correct?
02:40 A. I believe that's when. Yes.
02:40 Q. And you submitted a second one, as you told us, that
02:40 was quite extensive in September of that year, correct?
02:40 A. Yes.
02:40 Q. And your deposition was taken in September of last
02:41 year, correct?

02:41 A. Yes.

02:41 Q. And you know that the reports and the deposition were our opportunity to learn what you were going to say when you get on the stand, correct?

02:41 A. Yes.

02:41 Q. That was our last chance to know what you were going to say, correct?

02:41 A. Yes. I said yes.

02:41 Q. Okay. I'm sorry.

02:41 And you told us you were being compensated at $600 an hour, correct?

02:41 A. That's correct.

02:41 Q. And you had spent 300 hours working on this case, correct?

02:41 A. That's correct.

02:41 Q. Now, let's be sure I have it right, and correct me if I'm wrong, in that 300 hours you made an infringement determination on the '373 patent, correct?

02:41 A. That's correct.

02:41 Q. Reviewing all of the Intel documents, correct?

02:41 A. Did I review every single document? I'm sorry. Is your question --

02:41 Q. Sure. Reviewing all of the Intel documents you've described to the jury today, correct?

02:41 A. No. I didn't -- oh, that I described to the jury.

Yes, that's correct.

Q. And in that 300 hours, you made an infringement determination for the '759 patent, correct?

A. Yes.

Q. You addressed issues of validity. I'm not going to ask you about them now. But you addressed issues of validity, correct?

A. Correct. In the rebuttal, yes.

Q. You wrote two extensive reports totaling hundreds of pages, correct?

A. Yes.

Q. And you gave your deposition, correct?

A. Correct.

Q. And you got all that done in 300 hours which is a lot of hours, correct?

A. Well, the 300 I think includes prep for this trial.

Q. So that -- fair enough.

So if I add, in addition, preparing to testify at the trial, the total is 300 hours, correct?

A. 300 was up through -- yeah, I believe that's correct.

Q. Right. But the one thing we can agree is you did many things in that 300 hours, including deciding that Intel infringes the '373 patent, correct?

A. That's correct.

Q. Including deciding that Intel infringes the '759

patent, correct?

A. Yes. That's correct.

Q. Were you here this morning when Mr. Bearden testified that it would be a full-time job for many years to track down where an invention was being used?

A. To track down where an invention was being used? I don't recall that.

Q. You don't recall. Do you recall him being asked whether he had determined -- withdraw it.

Do you recall him being asked whether he knew whether the '373 patent had been used by Freescale?

A. Yes.

Q. And do you recall him saying -- and I'm reading from the rough transcript -- that "trying to track down where the invention might have been used would have been a full-time job for many years." Do you remember him saying that?

A. Yes.

Q. Yes.

A. I can explain.

Q. But you got it done in a lot less than several years, correct?

A. It's not the same task. Incorrect.

Q. Now, you didn't determine whether Freescale had produced any products using the '373 invention, correct?

A. It was not my task, no.

Q. You weren't asked to do it, correct?
A. That's correct.
Q. And the same is true for the '759, you were not asked to determine whether SigmaTel had used the invention, correct?
A. Again, it was not my task.
Q. You weren't asked to do it?
A. Correct.
Q. And you weren't asked to determine whether Freescale used the '759 patent, correct?
A. It was not my task.
Q. You weren't asked to do it?
A. Correct.
Q. But you could have done it if you had been asked, right?
A. Correct.
Q. Right. But no one asked, correct?
A. I was not asked.
Q. And you weren't asked to determine whether NXP uses the '759 patent, were you?
A. It was not my task.
Q. And you weren't asked to determine whether NXP uses the '373 patent, correct?
A. Again, it was not my task.
Q. Yeah. Fair enough.
So for -- just to put it all together, for SigmaTel,

Freescale, NXP and let me add in VLSI, you did not determine whether any of them had ever made a product that used either of the two inventions you've been testifying about here today, correct?

A. It was not my task, so no.

Q. Right. And the one thing we can agree upon is if you had been asked, and if NXP had given you the information, you could have done it, right?

A. Sure. Would take more hours.

Q. It would take more hours, but it certainly wouldn't take many years like Mr. Bearden suggested, correct?

A. It's not the same task.

Q. Now, you were first contacted about this case by lawyers from Irell and Manella, our colleagues on the other side of the room, correct?

A. I believe that's correct. Yes.

Q. And you've worked with them before, correct?

A. I've -- well, if what you're asking is have I been retained by clients who also were retaining them, then yes.

Q. Yeah. Fair enough. That's the question that you're comfortable answering and the answer is yes, correct?

A. Yeah.

Q. And you've done that four or five times, correct?

A. Yes.

Q. Now, before you filed your first report in this case,

you didn't know very much about VLSI, correct?

A. I did not.

Q. You thought it was important to find out something about the plaintiff, correct?

A. It was not my task.

Q. But you made some effort to find out something about the company that was retaining you to testify in a federal court, didn't you?

A. Again, beyond the patents and the litigation, I did not. No. It wasn't my task.

Q. Well, you knew that VLSI was an intellectual property company, correct?

A. I'm sorry?

Q. You knew that VLSI was an intellectual property company, correct?

A. I didn't make that determination back then.

Q. You didn't decide that? Would you turn in Volume 1 of the notebook to Tab 2, which is your deposition from September 28th.

And if it's easier for me to put it on the screen, I'll put it on the screen.

A. It's kind of tight in here, so...

Q. No. No. Fair enough. Whatever's easier for you, we'll make it work.

MR. LEE: So could we have on the -- if I could put on the

screen, Your Honor?

THE COURT: Of course.

MR. LEE: Could I have the September 28th deposition transcript, Page 82, Line 14 to 17?

BY MR. LEE:

Q. Question: "Does VLSI make any products?"

Answer: "I don't know one way or the other. I know this is their business. It's an intellectual property company."

That's what you knew at the time, correct?

A. That refreshes my recollection. Yes.

Q. No. You didn't know whether they made any products, correct?

A. That's correct.

Q. You didn't know whether they had ever successfully licensed anyone, correct?

A. Not -- I didn't know one way or the other.

Q. Okay. Now, Dr. Conte, as you told us, you've been a professor of electrical engineering for more than 25 years, correct?

A. 29 years now. Yes.

Q. You've done engineering, consulting and litigation work, in addition to being a professor, correct?

A. Yes. Georgia Tech allows that.

Q. And you've read a lot of patents, correct?

A. Yes. I have over the years.

02:48 Q. And as you told the jury, you have patents of your own, correct?
02:48 A. Yes. I do.
02:48 Q. And you were here -- you watched the opening statements, correct?
02:49 A. I didn't watch all of them. I was not here.
02:49 Q. Did you hear Mr. Chu describe the two patents in this case as stars?
02:49 A. I don't recall.
02:49 Q. Okay. The first time that you ever saw the '373 patent, the very first time was when the lawyers in this case sent it to you, correct?
02:49 A. I'd need to think back. It might be.
02:49 Q. You can't say one way or the other?
02:49 A. Yeah. It probably was.
02:49 Q. And the same's true for the '759 patent. Notwithstanding all your years in the industry, notwithstanding your own 40 patents, the very first time you saw the '759 patent was when the lawyers sent it to you for this case, correct?
02:49 THE COURT: Mr. Lee, I'm having a hard time hearing you. Are you all able to understand what he's asking?
02:49 MR. LEE: I'll stick closer to the mic, and if I don't, if someone raises their hand, it will make me -- okay.
02:50 THE WITNESS: I can hear you sort of.

BY MR. LEE:

Q. I think they can hear both of us, Dr. Conte. If you can't hear me, you let me know too.

A. I sure will.

Q. Okay. Now, just to be sure I have the question answered, before you were retained in this case, you had never heard of the '759 patent, correct?

A. Well, I don't think that -- that's hard to answer. And I'll tell you why.

I review, of course, as part of my work thousands of patents, so I don't recall whether or not I had seen it before.

Q. Well, did you -- at your deposition, did you testify that it was part of being retained in this case?

A. Oh, yeah. It was part of being retained in this case.

Q. Now, you've have never worked at SigmaTel, correct?

A. I have not.

Q. But you do know that SigmaTel developed and sold semiconductor products, correct?

A. As I've said, I've had past students that worked there.

Q. And it was a substantial company that made good and sophisticated products for some period of time, correct?

A. Yes. I'd agree.

Q. Right. And you talked to the jury about Freescale,

correct?

A. Yes.

Q. And at some point in time Freescale came to own both patents, correct?

A. Yes. That's correct.

Q. And at some point in time, NXP came to own both patents, correct?

A. I believe that's correct.

Q. Okay. And then ultimately VLSI did, correct?

A. I don't know the terms of the agreement, sir. Sorry.

Q. Okay. And for all of those entities, you cannot identify even a single prototype product that any of them made implementing the inventions of the '373 patent, correct?

A. No. I could identify if I was given enough information.

Q. But you weren't, correct?

A. I was not.

Q. And you haven't -- you did not identify in your expert report any prototype product implementing the '373 patent from any of those entities, correct?

A. That's right.

Q. And the same's true for the '759 patent. You did not identify in your expert report any testing -- I'm sorry -- any prototype product for the '759 patent, correct?

A. That's correct.

Q. And I'll combine the two now if I could.

It's also true that for all those companies you didn't identify a single test on performance for a prototype or a product for either of the two patents at any of those companies, correct?

A. Again, it was not my task, so correct.

Q. Right. Now, let me turn to the '373 patent, if I could.

And it's both in your binder, Dr. Conte, and I'll put it up on the screen. But to level-set us all, I'll put it on the screen. And can you see it?

A. Can you tell me which volume it's in?

Q. The patent itself is in Volume 2 of the binders, Tab 7.

A. Give me a moment.

Q. Sure. Tell me when you're there.

A. Let me just unclip it. That'll make this easier. Okay.

Q. Do you have it?

A. I do.

Q. Now, the title of the patent is "Minimum Memory Operating Voltage Technique," correct?

A. That's correct.

Q. The application was filed in August 2006, correct?

A. That's what it says.

02:53 Q. And the patent was issued in April of 2009, correct?
02:53 A. That's what it says. Yes.
02:53 Q. So the patent issued almost 12 years ago, correct?
02:53 A. If my math is right, yes.
02:54 Q. The first time you saw it was in 2019, correct?
02:54 A. Hundreds of thousands of patents I've seen.
02:54 Q. Yes. The answer is yes?
02:54 A. I don't know if I've seen it before, but I believe I had not.
02:54 Q. Okay. Now, there are four named inventors on the patent, correct?
02:54 A. There are.
02:54 Q. Andrew Russell, correct?
02:54 A. Yes.
02:54 Q. David Bearden, correct?
02:54 A. Yes.
02:54 Q. Bradford Hunter, correct?
02:54 A. Yes.
02:54 Q. Shayan Zhang, correct?
02:54 A. Yes.
02:54 Q. Now, before submitting your expert reports, you did not talk to any of the named inventors, correct?
02:54 A. Correct.
02:54 Q. You did not speak with Mr. Bearden, correct?
02:54 A. That's correct.

02:54 Q. And you did not speak to any of them before you provided your deposition, correct?
02:54 A. That's correct.
02:54 Q. Now, you were here physically, I think, in the courtroom for Mr. Bearden's testimony today, correct?
02:55 A. I was in the adjoining courtroom, but yes.
02:55 Q. Okay. Now, I want to ask you a little bit about the opinions you offered the jury right before lunch on the value of the '373 patent. Do you have that in mind?
02:55 A. Yes.
02:55 Q. And you were trying to identify the value compared to what had existed before, correct?
02:55 A. I wouldn't characterize it that way.
02:55 Q. Okay. But you were trying to identify what you called the value of the '373 patent, correct?
02:55 A. I was.
02:55 Q. And you discussed Dr. Annavaram's test results, correct?
02:55 A. I did.
02:55 Q. All right. So let's see what was known before so we can compare the invention -- the value of the invention to what existed before. Determining a minimum operating voltage of a memory was a concept known before the '373 patent, correct?
02:56 A. Yes, generally.
02:56 Q. Integrated circuits were known before the '373

patent, correct?

A. Yes.

Q. Memory was known, correct?

A. Yes.

Q. Memory and integrated circuit was known, correct?

A. Yes.

Q. Processors were known?

A. Yes.

Q. Voltage regulators were known?

A. Yes.

Q. All of these things were known before the '373 patent application was filed, correct?

A. All of those things we just discussed, yes.

Q. Right. And before the '373 patent, there were examples of memories with two voltages, correct?

A. Yes. I believe that's correct.

Q. And there were examples of voltages -- two voltages provided to standard random access -- I'm sorry -- SRAMs, correct?

A. I believe that's correct.

Q. All right. Now, let me bring up PDX-4.34 which is a diagram that you showed the ladies and gentlemen of the jury.

Do you see it on the screen?

A. I do.

Q. Now, as part of the diagram, there is in green the

words "new!" Correct?

A. That's correct.

Q. The voltage regulator 2 is labeled as new, correct?

A. That's correct.

Q. And the selector in the middle is also identified as new, correct?

A. The combination was new, yes.

Q. Now, you told the ladies and gentlemen of the jury that you reviewed the prosecution history, the back-and-forth between the applicants and the Patent Office, carefully, correct?

A. I don't believe we discussed the prosecution history in my direct.

Q. No. As part of your -- I'm sorry. As in preparing your reports, you reviewed the prosecution history of the '373 patent carefully, did you not?

A. I did.

Q. All right. Now, you have seen the original claims that Freescale tried to get from the Patent Office, have you not?

A. At some point in time, yes.

Q. And in fact, you described those claims that Freescale wanted to get at the outset in your expert report, correct?

A. I believe that's true.

02:58 Q. And in fact, those -- but Freescale asked the Patent Office at the outset, received a response from the Patent Office, didn't it?

02:58 A. Very likely.

02:58 Q. Yeah. And it said no, you can't do this. Other people have done it before, correct?

02:58 A. I would need to look at the file history to know what the response was.

02:58 Q. Okay. Let's do that. Volume 4 of your notebook, Tab 34 has PTX-7 which is the file history for the '373 patent.

02:59 A. Okay. Give me a moment.

02:59 Q. And tell me when you get to that tab and then I'll give you a page and I'll also pull it up on the screen, Dr. Conte.

02:59 A. Okay. I'm there.

02:59 Q. Okay. And we'll put up on the screen from Page 20 of PTX-7, the claim, Claim 11, that was being sought by Freescale.

Do you see it?

02:59 A. Yes. I see it.

02:59 Q. It had all of these things, integrated circuit, correct?

02:59 A. It does.

02:59 Q. Had a memory, correct?

02:59 A. It calls out a memory, yes.

02:59 Q. With an operating voltage, correct?

A. It calls it out, yes.
Q. Calls out a minimum operating voltage, correct?
A. Yes.
Q. Calls out a location to store a value, correct?
A. That's correct.
Q. And if you scroll down a little bit further to original Claim 12, this is another claim that Freescale said to the Patent Office: Could we have this claim too? And it described -- see where I am on Claim 12?
A. I do.
Q. Do you see Claim 12?
A. I do.
Q. Claim 12 depends from Claim 11, correct?
A. It does.
Q. And Claim 12 actually adds a second voltage regulator, correct?
A. Yes.
Q. A power supply selector, correct?
A. Correct.
Q. The two things that on your demonstrative you said were new, correct?
A. I'm sorry. Are we referring to Claim 12 in isolation of Claim 11?
Q. No. We're referring to Claim 11 and Claim 12 together.

A. That's correct.
Q. And the claims together refer to the second voltage regulator, correct?
A. Yes. I see that.
Q. It refers to the power supply selector, correct?
A. I see that.
Q. Precisely the things you said on your demonstrative were new, correct?
A. Yes.
Q. And if we go to, in the file history -- and I'll bring it up on the screen -- the Patent Office rejected these claims, didn't they?
A. I'm sorry. Where's the office action?
Q. The easiest thing might be I'll read you a statement from your report and tell me if you agree or disagree.
A. Okay. I'm still -- sir, give me a moment to find the office.
Q. Sure. Take whatever time you need.
A. Okay. Go ahead and read.
Q. Go to Page -- if this is easier for you, Dr. Conte, go to Page 45.
A. Thank you. That helps a lot. Okay. I'm there.
Q. Okay. And the Patent Office rejected Claims 1 to 21. So it rejected Claims 11 and 12 that had what you said were new, correct?

A. Yes, that's correct.

Q. Right. So the very things that you said this morning were new, the Patent Office said almost 15 years ago, no, they're old. Someone else has done those before.

MR. HEINRICH: Objection. There's a MIL on this and it's misleading about the prosecution history. So it's 403 MIL. This is an interim prosecution -- interim office action.

THE COURT: You'll be able to bring that up on cross. If you think what he's saying isn't correct or isn't accurate, you'll be able to bring that out on cross.

BY MR. LEE:

Q. Now, I think you described the invention of the '373 patent as unconventional. Did I write that down correctly?

A. It went against conventionalism.

Q. Yes. Okay.

Now, if -- I'm going to focus you on the patent, if I could, and I'm going to take you to the abstract first. The abstract's part of the patent, correct?

A. It's a nonbinding part of the patent, but yes.

Q. Well, when you read the claims, you read the claims in light of the specification, correct?

A. You read them in light of the specification and one of ordinary skill in the art.

Q. The abstract is part of the specification, correct?

A. It is.

03:04 Q. It's not included there for no reason. It's where the patent begins, correct?
03:04 A. I would not characterize it that way, sir.
03:04 Q. Okay. Well, I'm going to come to the claims, but I want to be sure that we understand what the abstract says. And then we'll read the claims in light of the entire patent.
03:04 MR. LEE: So if I could have the abstract on the screen.
03:04 BY MR. LEE:
03:04 Q. It does refer to a minimum operating voltage and determining when an alternative power supply can be switched to the memory, correct?
03:04 A. Yes.
03:04 Q. But it's the claims that really determine infringement, correct?
03:04 A. Yes.
03:04 MR. LEE: Now, if we could, could we have PDX-4.20 on the screen?
03:04 BY MR. LEE:
03:05 Q. Now, during its opening, VLSI said that the three separate --
03:05 A. I'm sorry sir. What -- PTX-4?
03:05 Q. PDX-4.20. It's one of VLSI's demonstratives. I'll put it on the screen. Do you see it?
03:05 A. Yes.
03:05 Q. And Mr. Chu used this in the opening and said that

the '373 patent was a new way for circuits to sleep when not in use, correct?

A. That's correct.

Q. Now, the word "sleep" is nowhere in the '373 patent, is it?

A. The word itself, no.

Q. Yes. The word "sleep" is nowhere in the claims of the '373 patent, is it?

A. The word itself, no.

Q. Okay. Now, let me be sure we understand your infringement contentions. I'm not going to go through them all in detail. You understand that Intel has retained Professor Sylvester from the University of Michigan to address the '759 patent and Professor Grunwald to address the other, or did I get them --

A. I think you got them reversed.

Q. I got them flipped. But you understand that they're both going to come and testify, and I'm not going to try to go into the details of their testimony. Okay?

Now, let's have PDX-4.32 on the screen. This is a slide from the opening statement by VLSI in this case, and I want to go to the bottom.

And it says, "Intel uses NXP patents across the mainstream products."

Do you see that?

A. Yes.

Q. Now, there are only two patents before the members of the jury, the '373 and the '759, correct?

A. Yes.

Q. For the '373 patent, the only products you accuse of infringing are Haswell and Broadwell, correct?

A. Yes.

Q. You do not accuse any of the Skylake and later products, the products listed on this slide, of infringing the '373 patent, correct?

A. Correct.

Q. So the fact -- if I look at the bottom, Intel uses NXP patents across mainstream processors, that's not quite accurate, correct?

A. I disagree.

Q. Well, there are two patents in issue, correct?

A. Yes.

Q. '373 patent is accused of infringing only Haswell and Broadwell, correct?

A. Yes.

Q. Haswell and Broadwell are not on this slide, correct?

A. Yes. They are. They're right there. 2013, 2014 --

Q. Okay. Okay. You're right. So fair enough. So Haswell and Broadwell would infringe the '373, correct?

A. That's correct.

Q. But the rest of them would not, correct?

A. That's correct. I showed they infringed the '759.

Q. Fair enough. Now, the microprocessors that you described are complicated products, are they not?

A. Oh, indeed. Yes.

Q. And you would agree that small changes in even one process step, one circuit, one transistor, can have extremely unanticipated and cascading consequences, correct?

A. In some cases. Yeah.

Q. In fact, you have said just that in your expert report, did you not?

A. And I just agreed with it.

Q. Okay. Now, each of the Haswell and Broadwell microprocessors contains more than a billion dollars in -- more than a billion transistors, correct?

A. You're saying billion transistors, not a billion dollars?

Q. Billion transistors.

A. Yes.

Q. And each of the Haswell and Broadwell microprocessors have multiple features, correct?

A. Yes.

Q. They have literally thousands of features, correct?

A. Yes.

Q. And you've accused two features -- you have accused a

feature of the Haswell and Broadwell products of infringing the '373 patent, correct?

A. That's correct.

Q. Now, you did study the documents from the Intel engineers that describe the development of the accused features, did you not?

A. I did.

Q. And you've learned -- you knew about this before, I'm sure -- about something called tape-in, correct?

A. I'm sorry?

Q. You've learned about something called "tape-in"?

A. Okay.

Q. You know what it is?

A. It's when you log the design in.

Q. Right. The Haswell product was taped in in August 2011, correct?

A. I would need to refresh my recollection.

Q. All right. Well, if it will help you if you go to your opening report.

A. Mr. Lee, if I said that in my opening report, it's fine. I don't remember the exact dates sitting here today.

Q. Well, that's fair enough. I'll represent to you that you said just that in your opening report.

A. Fine. Let's save each other some time.

Q. And I'll also represent to you that you said in your

opening report that Broadwell taped in in October 2012. You would agree?

A. That's -- if it's represented, yes.

Q. And I will also represent to you that you said explicitly that the Haswell and Broadwell products were fabricated about ten weeks later.

A. Okay.

Q. Okay. Now, let's turn to your specific opinions. You gave opinions on Claims 1, 5, 6, 9 and 11 to the members of the jury, correct?

A. Yes.

Q. Of those claims, only Claims 1 and 9 are independent claims, correct?

A. Yes.

Q. I'm going to bring up -- but again, if it's easier for you on the hard copy, use that. I'm going to bring up Claim 1 of the '373 patent and put it on the screen. Do you have it?

A. I do.

Q. Now, as you told us, for there to be an infringement, literal infringement, VLSI has to show that Intel's products contain each and every requirement of that claim literally, correct?

A. This is a method claim. So I have to show that Intel performs these steps.

Q. Literally, correct?
A. Correct.
Q. And each and every step literally, correct?
A. Correct.
Q. If even one step is missing, there's no infringement, correct?
A. Correct.
Q. Now, every word counts, correct?
A. Yes.
Q. Now, in your expert report and in your testimony today, you have offered an opinion of literal infringement of the '373 patent, correct?
A. Yes.
Q. In your direct testimony, you do not address the Doctrine of Equivalents for the '373 patent, correct?
A. Correct.
Q. So I'm not going to ask you any questions about that, and I'm going to move on to the literal infringement issue. Are you with me?
A. Yes.
Q. Okay.
MR. LEE: So, Your Honor, I think this is when -- actually we can extend the public records longer, a little longer.
BY MR. LEE:
Q. Now, let's go to the claim, Claim 1. And what I'd

like to do is take some time to talk about the words of the claim because it's the words of the claim that will determine infringement, correct?

A. That's correct.

Q. Now, I'm going to highlight on DDX-3.2 on the screen two of the limitations. The first is "determining a value of a minimum operating voltage of the memory," correct?

A. Yes.

Q. And "storing the value of the minimum operating voltage of the memory," correct?

A. Yes.

Q. Now, the other independent claim that you testified about to the members of the jury is Claim 9, correct?

A. Yes.

Q. Let me put Claim 9 on the screen. And Claim 9 has similar but not identical language. And Claim 9 requires storing a value representative of the memory's minimum operating voltage, correct?

A. Not quite what the element is, but...

Q. Well, it refers to an integrated circuit that has a minimum operating voltage, correct?

A. The claim speaks for itself. It refers to an integrated circuit -- "a memory that operates using an operating voltage, wherein the memory is characterized as having a minimum operating voltage."

Q. Right.
A. And the second part, you left out the first piece, "a memory location that stores the value representative of the minimum operating voltage."
Q. Fair enough. So we have a minimum operating voltage and we have a location where it's stored, correct?
A. Yes.
Q. Now, you would agree that if Intel's products do not store a minimum operating voltage, they do not infringe Claim 1, correct?
A. Yes.
Q. You would agree that if Intel's products do not have a value representative of the memory's minimum operating voltage, they do not infringe Claim 9, correct?
A. You said "if"? I'm sorry.
Q. If Intel's products do not have a value representative of the memory's minimum operating voltage, they do not infringe Claim 9, correct?
A. Correct.
Q. All right. Now, you have focused on something called the C6 SRAM in Intel's products, correct?
A. Yes.
Q. You say that's the memory -- that is the memory for your infringement analysis, correct?
A. Yes.

Q. Now, so the jury understands, that's not the only memory in these complicated microprocessors, is it?
A. No.
Q. There are many, many, many memories, correct?
A. Yes.
Q. And you have picked one, the C6 SRAM, to be the focus of your opinion, correct?
A. Yes.
MR. LEE: And, Your Honor, we now will move to the confidential record.
THE COURT: Okay. We'll seal the courtroom. If you are not under the protective order, you need to excuse yourself, and we'll turn off the telephonic feed.
(Sealed proceedings.)
BY MR. LEE:
Q. All right. Dr. Conte, switching gears to the '759 patent, do you see it on the screen?
A. I do.
Q. And again, just to level-set us, application filed June 29, 2005, correct?
A. That's correct.
Q. About 15 years ago, correct?
A. 15 and a half, I guess.
Q. Yeah. Fair enough. Now, when you talked about the '759, you mentioned the Apple iPhone. The Apple iPhone wasn't

even on the market in 2005, was it?

A. iPods were, but not the iPhone.

Q. Right. And you weren't suggesting that the '759 patent was ever used in the iPhone, were you?

A. No. I wasn't.

Q. Right. As far as you know, it never was, correct?

A. I haven't determined one way or the other.

Q. Okay. Now, as you said, there was a discussion of MP3 players in the patent itself, correct?

A. Yes.

Q. And that's in the background of the invention, correct?

A. Yes. That's true.

Q. And that's where the inventor was describing the problem that he was trying to address, correct?

A. In that section, yes.

Q. And it's discussing the concept of clock frequency in that context, correct?

A. In the context of? I'm sorry, sir.

Q. I'll restate the question. It was confusing.

He was discussing MP3 players, correct?

A. In the background section, correct.

Q. Yes. And in the background section he was discussing the concept of clock frequency for MP3 players, correct?

A. Hang on. I thought he was generally discussing clock

frequency for a computer system, sir.

Q. Well, take a look at the background section, and we'll bring it up. I'll draw your attention to Line 16 to Line 19, "One way to increase the performance of the MP3 player and provide quicker access to stored files is to increase the clock" -- "frequency of the clock used in the device. However, as the clock frequency increases to deliver more performance, the power consumption of the MP3 player also increases."

A. That's what it says.

Q. Okay. Now, I want to talk to you a little bit about where you ended your testimony, which was on the value of the '759 patent, again, where you discussed Dr. Annavaram's results, correct?

A. Yes.

Q. Now, the patent itself, its title is "System and Method of Managing Clock Speed in an Electronic Device." Do I have that right?

A. Yes.

Q. Now, many of the components that are described in the patent were actually known well before this time, correct?

A. Yes.

Q. And I want to go through some of the different things that you described to the members of the jury just to be sure that we know that they had been invented by someone else before.

Master devices were known before, correct?
A. Yes.
Q. Buses were known before, correct?
A. Yes.
Q. Clocks were known before, correct?
MR. HEINRICH: Objection.
BY THE WITNESS:
A. Yes.
MR. HEINRICH: They don't have an obviousness defense. They only have an anticipation defense. So this is -- there's a MIL on this, and it's 403.
MR. LEE: It's not, Your Honor. This goes directly to the value of the patent, and he gave testimony on the value of the patent. And we asked Your Honor for clarification on the MIL, and Your Honor said if it goes to damages, which is what he was testifying about, we could ask about the comparative value of the patent.
THE COURT: Counsel?
MR. HEINRICH: So there's nothing about this question that has any context relating to damages.
THE COURT: Okay. Could you re-ask the question?
MR. LEE: Sure.
BY MR. LEE:
Q. The answer was: Clock frequency was known?
A. Yes.

Q. Clock controllers were known, correct?

MR. HEINRICH: Objection. There's no context for damages. This is covered by the ruling on MIL 6.7.

MR. LEE: Your Honor, it's not. In order to determine the value of an invention, you have to compare the value to what existed before. That's all I've done.

THE COURT: I understand that. I think -- I feel like we've gone over this before, though --

MR. LEE: Yeah.

THE COURT: -- with all these same questions of what was known before.

MR. LEE: It was for the '373 patent, Your Honor.

THE COURT: I don't think any of the items -- I think if they were well known for the one patent, I think they'll be equally well-known for this one.

MR. LEE: Your Honor, that is -- as the predicate, we'll take it.

BY MR. LEE:

Q. So the invention of the '759 patent was how these components were combined, correct?

A. The claims speak for themselves. So yes. There is an apparatus claim, and I believe that's a combination of elements. So yes.

Q. Okay. Now, as you told us, you reviewed the prosecution history of the '759 patent, correct?

A. I have.
Q. Now, the prosecution -- well, let's do it this way.
During the prosecution of the '759 patent, the Patent Office actually rejected the proposed claims multiple times, correct?
A. Yes. That's true.
Q. About eight different times, correct?
A. Sure. That sounds typical.
Q. And what happened was the patent applicant actually cancelled the claims it was asking the Patent Office for. It said: We're not going to ask for those. We understand there's a problem. And they submitted new claims during prosecution, correct?
A. That's typical and allowed, so correct.
Q. That's typical and that's what they did?
A. Yes.
Q. And they actually did it multiple times, correct?
A. Again, that's typical.
Q. Did they do it multiple times or not?
A. I believe at least twice.
Q. So let's look at what they did and what they said to the Patent Office to get their patent. The prosecution history is in Volume 3, Dr. Conte, of -- at Tab 24.
A. Okay.
Q. Do you have that before you? And I'm going to turn

you to Page 429, and we'll put it on the screen.

A. Give me a moment to get there.

Q. Sure. Just tell me when you're there.

A. Okay. Thanks.

29, you said, sir?

Q. So Volume 3, Tab 24, at Page 429.

A. Okay.

Q. And this is Exhibit 249, lots of numbers flying around. But I'll put it on the screen as well, if that's easier.

A. I have it.

Q. All right. Now, you see the amendments that were made by the applicant in an effort to get this patent, correct?

A. Yes.

Q. And the -- so everybody understands, the underlining are things that were added to the claims in order to get them allowed?

MR. HEINRICH: Objection. This is now getting into claim construction issues. There's a MIL on this, 5.3. It's not appropriate questioning to bring the prosecution history in this way.

MR. LEE: Absolutely incorrect, Your Honor. Because there was a motion for summary judgment on prosecution history estoppel. Your Honor denied it because there were questions of fact.

THE COURT: I agree.

MR. LEE: We're now just trying to question the fact on that issue.

THE COURT: I agree. I'm overruling the objection.

BY MR. LEE:

Q. So, Dr. Conte, do you see the underlining on proposed Claim 44?

A. Yes, I do.

Q. Now, the Patent Office issued these claims only after the patent applicant made these very specific additions, correct?

A. Yes.

Q. And it was after these specific additions were made that the claims were allowed, correct?

A. I believe this turned into Claim 14; is that correct?

Q. It did. It turned into a claim in the patent as issued, correct?

A. I need to check the language, but if you're presenting that this turned into a claim in the final patent in this form, then yes.

Q. All right. And we can agree that the limitations that were added are the ones underlined, both of which begin "provide the clock frequency," two separate paragraphs, correct?

A. Yes.

Q. All right. Now, before we get to the claim specifically, the products you've identified are Intel Skylake and other Lake microprocessors, correct?

A. That's correct.

Q. And you know that those microprocessors contain literally billions of transistors, correct?

A. That's correct.

Q. Now, it was -- you talked about Speed Shift today. Do you remember that?

A. Yes.

Q. And you talked about people praising the benefits of Speed Shift. Do you remember that?

A. Yes.

Q. And you talked about the performance benefits that could come from Speed Shift, correct?

A. That's correct.

Q. You haven't seen anything like that for the work on the '759 patent done at SigmaTel, Freescale or NXP, have you?

A. I didn't search for it. So no. I do not -- I did not.

Q. Okay. Now, Intel was not praising the '759 patent. Intel was praising its Speed Shift feature itself, correct?

A. I'm not sure that's a precise question. I'm sorry.

Q. All right. The documents that you -- the marketing documents and the advertising documents that you referred the

jury to today, do you have those in mind?

A. Yes.

Q. Those were praising Speed Shift and its benefits, correct?

A. Yes.

Q. The work that resulted from Intel's engineers, correct?

A. Yes.

Q. Now, you used Speed Shift/HWP and a hardware P-state to mean basically the same thing, correct?

A. I would put it slightly differently.

Q. Well, if I represent to you that you said in your deposition that you used Speed Shift/HWP and hardware P-state to mean the same thing, and you said generally, yes, would that be accurate?

A. I said generally.

Q. Okay. Now, I want to ask you about tape-in dates again, because at some point in time we're going to come back and give the jury the whole chronology of what occurred here. Intel's first tape-in date for Skylake was April 2013, correct?

A. I believe so. Yes.

Q. And that was eight years after the application was filed for the '759 patent, correct?

A. Yes.

Q. Skylake didn't launch till 2015, correct?

A. That's correct. September 1st, I think.
Q. Almost a decade after the filing of the 2005 -- almost a decade after 2005. Do you remember that?
A. I think it's slightly more than a decade. But yes.
Q. And you were here this morning when Dr. -- when Mr. Bearden talked about just how fast things move in the semiconductor field of technology, were you not?
A. Yes. Some things do move fast in the semiconductor technology field.
Q. So let's put Claim 14 on the screen, if we could.
A. Are we done with this, or do you want me to continue to hold it?
Q. No. We may come back to it, but for right now I'm going to look at the patent.
A. Okay.
Q. Okay.
A. I'm going to put it on the floor then.
Q. Sure. Let me know when you're ready to go.
A. I'm ready.
Q. Okay. I'm going to put Claim 14 on the screen, and that's one of the claims you say is infringed, correct?
A. That's correct.
Q. Now, I want to focus you on the first requirement, a request, in the claims. Can we do that?
A. Yes.

Q. All right. And I'm going to bring up DDX-3.12. Do you have that before you?

A. Are you going to show it on the screen, sir?

Q. Yes. Claim 14 is on the screen with portions highlighted in light red?

A. I thought you said you were going to show me another PTX. I'm sorry.

Q. Okay. I'm sorry. We'll get back on the same page. We're in the '759 patent, correct?

A. Yes.

Q. We're looking at Claim 14, correct?

A. Yes.

Q. You have on the screen Claim 14 with two portions highlighted, correct?

A. Yes.

Q. And the claim requires that the first master device configured to provide a request to change a clock frequency of a high-speed clock, correct?

A. Yes.

Q. Now, Claim 14 also requires, a little further down, that the clock controller receive the request provided by the first master device, correct?

A. Yes.

Q. All right. Now, let's bring up Claim 18. '759 patent still, Claim 18. Are you with me?

A. Yes.
Q. And I've put on the screen Claim 18 and highlighted a portion that refers twice to requests. Do you see those?
A. Yes.
Q. Twice, correct?
A. Twice.
Q. So all of the asserted claims -- we've now looked at the two independent claims, all of them require a request, correct?
A. Yes.
Q. Now, let's turn to your opinion that Intel's products actually send a request. According to you, in the Lake products which you say is the first master device, it's one of the cores of the product, correct?
A. That's correct.
Q. And it's your opinion that in Intel's Lake products, a change in what you told the ladies and gentlemen of the jury, C0 residency data is the required request from the claims, correct?
A. In the DOE argument, yes.
Q. But not in your literal infringement argument, correct?
A. Not with what I presented today, no.
Q. Okay. But actually what you presented today is different than what you said in your deposition, isn't it?

A. That's --

THE COURT: If it is, why don't you show him?

MR. LEE: Yeah. Let's turn if we could to Volume 1, Page 91, Lines 12 to 16.

MR. HEINRICH: Objection to displaying this on the screen.

THE COURT: Displaying his deposition?

MR. HEINRICH: Deposition testimony.

THE COURT: Why?

MR. HEINRICH: This is not in evidence and this is improper impeachment.

THE COURT: I don't know any other way to do it. So you can certainly show him.

BY MR. LEE:

Q. Question: So is the C0 residency data the request?

Answer: Not precisely.

Question: How would you put it more precisely?

Answer: The C0 residency data, when it changes from the prior C0 residency data, is the request.

Have I read that correctly?

A. You have.

Q. Now, so the jurors understand, after your deposition was finished, you got a written transcript of your deposition, correct?

A. Yes.

Q. You had a chance to read it and make corrections,

correct?

A. That's correct.

Q. You never changed that answer, did you?

A. No. And I stand by my answer.

Q. But that's not what you identified as the request this morning -- this afternoon, correct?

A. That's incorrect.

Q. All right. Now, C0 residency information is counted in C0 residency counters, correct?

A. It's "C0," by the way, sir.

Q. C0. I'm sorry. C0 residency information is counted in C0 residency counters, correct?

A. Yes. There are counters inside the PCU called C0 residency.

Q. And those counters inside the PCU send that data along periodically, correct?

A. Those counters are sampled periodically. One can think of it as being sent.

Q. Well, you know, to be precise, let's look at what you said in your deposition again. Turn, if you would, to Volume 1, Tab 2, your September 28th deposition at Page 161, Lines 12 to 25.

MR. HEINRICH: Can I just take a look before it's published?

THE COURT: Yes.

MR. HEINRICH: If you could give us the cite again, please.

MR. LEE: Yes. It the September 28th deposition, Page 161 --

(Simultaneous conversation.)

MR. LEE: Line 21 to 25.

(Off-the-record discussion.)

(Conference between counsel.)

BY THE WITNESS:

A. I'll ask what volume is my deposition in, sir?

BY MR. LEE:

Q. I'm sorry. Volume 1, Tab 2.

A. Okay. Thank you.

And hopefully without irritating you too much, could you say that one more time?

Q. It wouldn't irritate me at all if we all got ourselves on the same page.

A. Exactly.

Q. Volume 1, Tab 2 which is your September 28th deposition, correct?

A. Yes.

Q. Page 161. Are you with me?

A. Well, I will be. Hang on. Okay.

Q. Do you have it?

A. Yes.

Q. Now, this is the testimony you gave in your deposition, correct?

A. Yes.

Q. So Question --

MR. LEE: And there's a long question, but let's scroll up so we can see the whole thing.

BY MR. LEE:

Q. And I just -- I want to make sure I understand your understanding is of how this is sent. And I will confess I am tripped up by the use of "continuously" in one place and periodically in another. So I guess my -- my question is, when is C0 residency counter information sent?

Answer: All right. So let me see if I can clear this up. The C0 residency counter information is pushed to the PCU periodically, the cores, the request, when that C0 residency information changes. So that's in that periodic sense, some of those are requests. So I'm referring to this as it happens so frequently as continuously. By continuous, I'm talking about this -- this nature that it occurs very rapidly.

Do you see that?

A. I do.

Q. And you described the counter information being pushed out by the PCU, correct?

A. I do.

Q. And you described it as occurring periodically,

correct?

A. I do.

Q. Isn't it true that you also testified in that same deposition that the periodic reading of information is not a request?

A. Yes.

Q. All right. So you described the accused feature as periodic, correct?

A. Yes.

Q. And you said on the very next page that a periodic push-out of information is not a request, correct?

A. That's correct.

Q. Now, let me go to a different topic but within the '759 patent. You discussed this being a hardware solution and it being unconventional because --

A. Can I put this folder down? I'm sorry.

Q. No. That's okay. You can put that aside and I'll bring you to it.

A. Okay.

Q. Okay. I'm going back to your direct testimony where you were describing why this was -- this invention worked against the conventional wisdom, okay?

A. Yes.

Q. And I think one of the things you said is it was working against the conventional wisdom because it was

hardware-based. It was building more hardware in, correct?

A. That's correct.

Q. Now, let's -- and I think you said that -- if I've written it down right -- the invention was autonomous, self-control hardware?

A. Okay. That sounds like something I would say.

Q. Okay. So let's bring up Claim 14 again, because it's the words of the claim that are most critical, correct?

A. Correct.

Q. Now, the word "autonomous" is not in the claims, correct?

A. The word is not.

Q. The word "self-control" is not in the claims, correct?

A. The specific words are not.

Q. Now, when you were asked for the basis for your conclusion that the claims require an autonomous system, you said it was based on the specification, correct?

A. I might have.

Q. I'll represent to you that that's what you said, but I'll take you to the page if you'd like.

A. That's fine.

Q. Okay. Now, the word "autonomous" actually doesn't appear anywhere in the patent at all, correct?

A. The word does not.

03:55 Q. The word "self-control" doesn't appear in the claim, correct?
03:55 A. It does not.
03:55 Q. The word "self-control" actually doesn't appear anywhere in the patent, correct?
03:55 A. Self-control does not -- the words do not appear in the patent.
03:55 Q. Now, you've also suggested that the system invention --
03:55 A. Can you stand closer to the mic?
03:55 Q. Sure. You also suggested that the invention was something that was operating entirely through hardware, correct?
03:55 A. It's using a hardware controller, so yes.
03:55 Q. Right. But the specification actually -- which you talked about today -- says that the system can be implemented in hardware, firmware or software, does it not?
03:56 A. The specification might say that, yes.
03:56 Q. Well, let's be sure. This is important to look at. Could we have, from the patent, which is --
03:56 A. I know the lines you're referring to.
03:56 Q. Pardon?
03:56 A. Pull them up, but I know the lines you're referring to.
03:56 Q. And I think we've stated them accurately, have I?

A. You have.

Q. Now, let me bring up one of the demonstratives that you used today. It's PDX-4.171. You have that before you?

A. I do.

Q. And you provided us your opinion that in Intel's products Core_Active is what corresponds to the request, correct?

A. I did.

Q. That's different than what you said in your deposition, was it not?

A. I --

THE COURT: If you're going to ask him that, you need to show him what he said in his deposition.

MR. LEE: I thought I had just a few minutes ago, Your Honor.

THE COURT: Well, still I think it'd be fair for him to see what --

BY MR. LEE:

Q. Do you recall what you said about this issue in your deposition?

THE COURT: Well, I don't like questions that say: Do you recall, because the jury doesn't know what's in the deposition.

MR. LEE: Sure.

THE COURT: So ask him the questions, and if something different, then you can show him the deposition and remind him

or see what he says.

MR. LEE: I'll bring it up again. Could I have --

Give me a second, Your Honor.

Yes. Could I have what I showed you before from your deposition? It's at Volume 1, Tab 2, at Page 91, Lines 12 to 16.

MR. HEINRICH: Could I have just a minute to take a look before it's published?

MR. LEE: Sure. Could I have just a second, Your Honor?

THE COURT: Of course. And, Mr. Lee, don't wait for me. You're welcome to start as soon as the counsel --

MR. LEE: Yeah. I'm just waiting for Mr. Heinrich to say he's taken a look at it.

BY THE WITNESS:

A. I'm sorry. What page, sir?

BY MR. LEE:

Q. Volume 1, Tab 2, Page 91.

A. Okay.

Q. And the question begins at 12 and there are two questions.

MR. LEE: Have you had a chance to look at it?

MR. HEINRICH: Yes.

MR. LEE: Okay.

BY MR. LEE:

Q. So the question at 12 is: "So is the C0 residency

data the request?

"Answer: Not precisely.

"How would you put it more precisely?

"Answer: The C0 residency data, when it changes from the prior C0 residency data, is the request."

Do you see that?

A. Yes.

Q. That's what I was referring to. Do you recall we looked at this just a few minutes ago?

A. Yes.

Q. And you told me that after your deposition you did not change this answer, correct?

A. That's correct.

Q. Now, could we go back to PDX-4.171?

And the title is "Core_Active is a request to change speed," correct?

A. Yes.

Q. All right. And is it your testimony that those are the same things, a change in C0 residency data is the same as Core_Active?

A. No.

Q. Okay. Fair enough.

Now, I just want to cover one more thing with you.

MR. LEE: And, Your Honor, this would be on the confidential record.

THE COURT: Okay. Then we'll seal the -- I don't believe there's anyone in the courtroom that is not supposed to be. Therefore, we'll just terminate the -- we'll suspend the telephonic coverage.

MR. LEE: Okay.

(Sealed proceedings.)

MR. LEE: Thank you, Your Honor. Nothing further.

THE COURT: Could I have counsel up at the bench, just Mr. Lee and Mr. Chu, please?

(Bench conference.)

THE COURT: I'm just curious, when you're finished with this gentleman, who would your next witness be?

MR. CHU: It'll probably be Murali Annavaram, a professor at USC. And I'm not handling him, but I don't think it'll be really short, if you're thinking about when we would finish for the day. I have the impression that there'll be some meaningful redirect, although --

(Off-the-record discussion.)

THE COURT: I'm allotting the next hour to finishing up this witness, and I won't start another witness.

Well, let me ask you this: Is the next person an expert?

MR. CHU: Yes.

THE COURT: Why don't we do this, with your permission, let's finish up with him and then you put your expert on and just do whatever you want to do. If you're going to do

something to prove him up as an expert.

MR. CHU: Oh, okay.

THE COURT: And we'll get that knocked out, and then we'll break. And that way -- nothing substantive, just we'll use a little more time, just to get out of the way and save our time tomorrow.

MR. CHU: Okay. And then if I can just have one minute to contact my colleague who's handling it, just to let him know what the game plan is. Just one minute.

THE COURT: Absolutely.

MR. LEE: Thank you, Your Honor.

(Bench conference concludes.)

THE COURT: Mr. Chu, are we good?

MR. CHU: We're good.

THE COURT: Thank you, sir. You may proceed with your redirect.

Are you doing okay, Doctor?

THE WITNESS: I'm hanging in there. Thank you, sir.

THE COURT: Doctor, if you wind up needing a short break, you let me know, okay?

THE WITNESS: Yeah. If you don't mind.

THE COURT: Would you like just a five- or ten-minute break?

THE WITNESS: That'd be great.

THE COURT: Let's do that. Just you've been sitting

there -- we've all been sitting here, but you've been sitting here in a different situation than the rest of us.

So we're going to take just -- we're going to take a very quick break. Y'all will run back, don't discuss the case. And in just a couple of minutes, we'll come back. And we'll give everyone a chance just to get out of this room, if nothing else. That's probably a good idea anyway.

THE BAILIFF: All rise.

(Jury exited the courtroom at 4:10.)

(Recess taken from 4:10 to 4:20.)

THE BAILIFF: All rise.

THE COURT: Please remain standing.

(The jury entered the courtroom at 4:20.)

THE COURT: Thank you. You may be seated.

Counsel, you may proceed with redirect.

REDIRECT EXAMINATION

BY MR. HEINRICH:

Q. Good afternoon, again, Professor Conte.

A. Good afternoon.

Q. Just have a few questions to follow up on some --

THE COURT: Counsel, is this -- I apologize. Is this sealed or unsealed?

MR. HEINRICH: I don't think this -- I don't think I'll get into anything that needs to be sealed.

THE COURT: Very good. This will be unsealed and the

broadcast will go out. Thank you, sir.

BY MR. HEINRICH:

Q. So just a few follow-up questions for you. I'll start at the end and then I'll go back to Mr. Lee's beginning.

So at the end he asked you a question about knowledge of the patents by Intel. Does Intel need to be aware of the patents or know the patents or copy the patents to infringe the claims that you led us through?

A. No. My understanding as an inventor is that it's like property. If somebody trespasses on my property, they're still trespassing even if they don't realize it.

Q. Okay. Now, Mr. Lee started by asking you a lot of questions about whether you did an analysis of whether NXP or Freescale or SigmaTel practiced the claims of these two patents. Do you recall that?

A. I do.

Q. Now, does it matter one bit to your infringement analysis of Intel's products whether NXP practiced these patents?

A. No, it doesn't.

Q. Do you have to establish that Freescale practiced the claims in some of its products for Intel to be liable for infringement?

A. No.

Q. And how about SigmaTel?

A. No.

Q. Is your analysis of Intel's infringement related in any way to having to do an analysis, whether these patents were used by NXP or Freescale or SigmaTel?

A. No.

Q. Mr. Lee asked you some questions about whether SigmaTel or NXP or Freescale obtained value from using these patents. Do you recall that?

A. Yes.

Q. Does the value that Intel has gotten from using these patents depend on testing any SigmaTel or NXP or Freescale products?

A. No. Of course not.

Q. And is -- are any of the issues you addressed here on Intel's infringement or the value to Intel dependent on the tasks that Mr. Lee was asking you about regarding NXP or SigmaTel or Freescale products?

A. No.

Q. Okay. Mr. Lee asked you about whether you looked at engineering documents from Freescale or SigmaTel or prototypes. Do you recall that?

A. Yes.

Q. Did you need to, or would it be proper to compare those engineering prototypes or engineering documents to Intel's product as part of your analysis?

A. Absolutely not.

Q. What do you need to compare to Intel's products for a proper infringement analysis?

A. The patent.

Q. So was the patent what you needed on the Freescale side or the SigmaTel side to determine whether Intel infringed based on your review of Intel information?

A. Correct.

Q. Now, you were asked some other questions about NXP. And is there any reason why NXP may not have decided to use the '373 patent?

A. Yes, there is. So NXP produces chips that go into planes and cars. And in situations like that, mission-critical situations, doing things like putting cores to sleep might risk someone's life. So you don't do that. It's okay to spend a little more power for safety.

Q. Is that different from Intel's business model?

A. Yes.

Q. Okay. Let's put up PTX-7 at Page 45. And you were asked some questions about the Patent Office purportedly rejecting a claim of the '373 patent. Do you recall that question series?

A. Yes, I do.

Q. All right. Now, let's highlight the top part here. First, do you recognize this as one of those back-and-forth

between the Patent Office and the inventor?

A. Yes. I've seen this for my own patents, for example.

Q. And first, is it uncommon to get an office action, in other words, a communication from the Patent Office, that issues a provisional rejection of claims?

A. Not at all. It's usually the first communication you get from them.

Q. So is this a final rejection or is this a non-final rejection?

A. It's a non-final rejection.

Q. So did the Patent Office ultimately agree with Freescale and the Freescale inventors that their claims were novel and nonobvious?

A. Yes, they did.

Q. And is there even any dispute in this trial about the validity of the claims of the '373 patent that you presented today?

A. No, there is not.

Q. Now, you were asked some questions about the RING_RETENTION_VOLTAGE in the Intel chips, correct?

A. Yes.

Q. And can you just remind us what you identified the RING_RETENTION_VOLTAGE as, in terms of the claims of the '373 patent?

A. It was the worst-case retention voltage for the C6

SRAM.

Q. And the claims say that's the minimum operating voltage?

A. That's right. The minimum operating voltage.

Q. Now, Mr. Lee was asking you some questions, well, you know, it's the RING_RETENTION_VOLTAGE for the entire ring domain. And he said, well, that includes the CBO, right?

A. Yes.

Q. Is the RING_RETENTION_VOLTAGE value the -- does that have any application to the CBO?

A. No. The CBO doesn't have much memory at all in it.

Q. And what does this value have to represent? What does retention mean?

A. It's about memory.

Q. And what about the ring? Is that the ring retention value for just the ring regardless of the memory?

A. No. Again, the ring doesn't have much memory at all.

Q. And this is the value for the memory in the LLC and the C6 SRAM?

A. That's correct.

Q. Now, is there any difference in the memory cells between the LLC and the C6 SRAM?

A. No. They're the same memory cells. And in fact they also use the same error correction codes throughout.

Q. All right. So what's your opinion on how the

RING_RETENTION_VOLTAGE value applies to the C6 SRAM?

A. My opinion is that it is the minimum operating voltage of the C6 SRAM.

Q. And is that what Intel itself says?

A. Yes.

Q. Now, you were also asked about how the RING_RETENTION_VOLTAGE is used in the context of the mux. And I think Mr. Lee was asking you if it was the precise decision point for the mux. Can you explain broadly how it's used in the power management system of which the mux is a part?

A. Yes. So as I said, it's used to lower the memory to the minimum retention voltage in some sleep states such as C3 and C6.

Q. And if we're in that sleep state where the voltage is right at the RING_RETENTION_VOLTAGE, what does the mux do?

A. The mux is still going to allow VCCI -- I'm sorry -- VCCR, our purple, to be supplied to the memory.

Q. And if you're just under that RING_RETENTION_VOLTAGE level because you're going to down into C7, what does the mux do then?

A. It has to switch or C6 SRAM would forget.

Q. And is that exactly what the claim requires?

A. Yes.

MR. HEINRICH: Let's pull up the '759 patent. Let's go to the background section.

BY MR. HEINRICH:

Q. You were asked some questions about the background and the references to MP3 players. Do you recall that?

A. Yes.

MR. HEINRICH: If you can just blow up that first paragraph.

BY MR. HEINRICH:

Q. And Mr. Lee asked you some questions about -- well, about the passage that we see here that starts, "One way to increase the performance of the MP3 player and provide quicker access to stored files is to increase the clock frequency of the clock used in the device. However, as the clock frequency increases to deliver more performance, the power consumption of the MP3 player also increases."

Is that relationship between increased speed and increased power consumption some unique property to MP3 players?

A. No. That's true of any computer system.

Q. And does the method and the system that the '759 patent describes for balancing speed and power consumption, is that limited to MP3 players?

A. No. It is not.

Q. And do the claims require an MP3 player?

A. They do not.

Q. Now, Mr. Lee also asked you a question about a statement in the specification of the patent that could be

hardware or software. Do you recall that?

A. Yes.

Q. Now, do you compare the Intel products to the specification or do you have to focus on the claims?

A. The claims.

Q. And you focused on, among others, Claim 14?

A. Yes.

Q. What kind of solution is claimed in Claim 14, a hardware solution or software solution?

A. It is a hardware solution. It's an apparatus claim.

Q. And what's the key part of the Henson invention as we talked about for Claim 14?

A. Programmable clock controller.

Q. Okay. So you were asked some questions about your deposition testimony. Do you recall that?

A. Yes.

Q. And you were asked a number of questions about some testimony you provided about the C0 residency?

A. Yes.

Q. Now, you gave a literal infringement opinion to the ladies and gentlemen of the jury based on what being the request?

A. Core_Active.

Q. What's the relationship with -- between the Core_Active signal and C0 residency?

A. Okay. It works like this. Core_Active starts these C0 residency counters. And then when you send an inactive, it stops them.

Q. Are Core_Active signals sent periodically?

A. No.

Q. When are they sent?

A. They're sent whenever the core becomes active.

Q. So does any of that testimony about periodic signals apply to the Core_Active requests?

A. No.

Q. You also testified that you were retained four or five times for other clients that the firm I'm with has represented over the years. Do you recall that?

A. Yes, I do.

Q. And do you have an understanding of why you have been requested as an expert for other cases?

A. Yes. There was a case in the Northern District, I believe, of Wisconsin where the University of Wisconsin --

MR. LEE: Your Honor, your MIL said that we weren't going to get into his other cases.

MR HEINRICH: He opened the door.

MR. LEE: All I asked about was retention. So if we wants to get into the cases, I'll get into the cases. He's going to open the door.

(Conference between counsel.)

THE COURT: Counsel, do you want to ask this question and we'll go back and forth? I agree with Mr. Lee that I'm going to let -- we're either going to keep this primarily out or I'm going to let you both ask whatever you want. It's up to you.

BY MR. HEINRICH:

Q. Did you on one of the -- or two of the four or five cases, did they involve cases in the Eastern District of Texas?

A. They did.

Q. And can you tell us what happened in those cases?

A. In those cases it was -- I was representing or -- actually, I was retained by USAA. That's a -- some of you might know what that is. It's a company that provides insurance and banking services for current or former members of the Armed Services.

And they had developed a mobile application, you know, that way you take pictures of your check? USAA invented that and they marketed it and everything.

And on the other side was Wells Fargo who had just decided to deploy their own version of that same thing. So I got up in court and I testified about why I thought what Wells Fargo was doing was the same as the USAA patents.

Q. And what did the jury find?

A. Jury found that I was correct.

Q. And do you know how much was awarded to USAA?

A. Of those two cases, I believe it was about

$250 million.

Q. And where is USAA based?

A. They're based in San Antonio.

MR. HEINRICH: That's all I have, Your Honor.

THE COURT: Mr. Lee?

(Conference between counsel.)

THE COURT: Mr. Lee, I think he may have one more.

BY MR. HEINRICH:

Q. So just to clear up one last thing. So Mr. Lee was asking you some questions about whether individual computer components, like a voltage regulator or a core, other basic stuff like that, were known individually before these patents.

Do you recall that?

A. Yes.

Q. Just because basic computer components are known, does that mean that you can't come up with new inventions that combine those known components in novel ways?

A. Of course not. I mean, canvas and paint was known before the Mona Lisa. That doesn't mean the Mona Lisa wasn't an excellent intellectual property.

Q. Thank you very much.

THE COURT: Mr. Lee?

RECROSS-EXAMINATION

BY MR. LEE:

Q. Dr. Conte, a few questions. Mr. Heinrich wanted to

ask you about your other cases.

You testified in a case on behalf of something called the Wisconsin Alumni Research Foundation, correct?

A. I did.

Q. You testified that there was infringement, correct?

A. Yes. I found infringement against Apple Computer for some --

Q. And it went all the way to the Court of Appeals?

THE COURT: Mr. Lee?

MR. HEINRICH: Objection.

THE COURT: And your objection is?

MR. HEINRICH: This is a 403.

THE COURT: Overruled.

BY MR. LEE:

Q. It went all the way to the Court of Appeals in Washington, D.C., correct?

A. That's my understanding. Yes.

Q. And the Court of Appeals found that no reasonable jury could find infringement based upon what you had said, correct?

MR. HEINRICH: Objection. That misstates the opinion.

MR. LEE: Well, I just asked him if that's what --

THE COURT: You can bring that up when you do -- when you ask questions after Mr. Lee -- I mean, yes, after Mr. Lee.

BY THE WITNESS:

04:38 A. I believe that's not accurate.
BY MR. LEE:
Q. Well, there was a jury verdict based upon your testimony, correct?
A. Yes.
Q. It got reversed, correct?
A. Yes.
Q. And let me see if I can refresh your recollection. Let me get to the very end of the Court of Appeals opinion. "No reasonable jury could infer or draw the inference that load tags will always represent multiple load instructions."
That was that issue in the case, correct?
A. Yes.
Q. And what they cite from that proposition is your testimony, correct?
A. In part. Yes.
Q. And the one thing that we can agree upon is the ultimate decision by the Court of Appeals, the same Court of Appeals that will get this case if it's ever appealed, was that no reasonable jury could find infringement based upon your testimony, correct?
A. I think that's inaccurate.
Q. All right. Now, let me ask you a couple of other questions.
You said on redirect that Claim 14 of the '759 patent, if

I could have it on the screen. Do you see it?

A. Yes.

Q. Now, it refers to an "embedded computer program."

MR. LEE: Can we highlight that?

BY MR. LEE:

Q. Do you have it?

A. Yes.

Q. An embedded computer program is a software program, correct?

A. Yes.

Q. Now, Mr. Heinrich asked you some questions about what SigmaTel, Freescale, NXP, VLSI have done with the patents, correct?

A. Yes.

Q. You gave opinions on the value of the patents, correct?

A. Yes.

Q. You were present when Mr. Chu described these patents as "stars," correct?

A. I was not. We already discussed this.

Q. Okay. But you know that he did, correct?

A. That's correct.

Q. Now, you would agree with me that one of the indications of value is what the owners of the patents actually did with the patents, correct?

A. I know there's a whole set of rules about this. I forget --

Q. No rules. Just common sense. If we want to look at whether someone thought something was valuable, we would look at what they did with it, wouldn't we?

A. That would be one indicia. There could be many.

Q. It would be a very commonsense indicia of whether there was real value, wouldn't it?

A. Among others.

Q. Thank you.

MR. LEE: Nothing further, Your Honor.

FURTHER REDIRECT EXAMINATION

BY MR. HEINRICH:

Q. Couple questions. So the WARF case that Mr. Lee referred to, did the Court of Appeals disagree with your technical analysis, or did the Court of Appeals disagree with how the Court -- the District Court interpreted a claim term?

A. There was a claim term at issue. I interpreted it accordingly to the District Court. And the Court of Appeals then decided the decision should be reversed based on that claim term.

Q. And do you understand if that case is actually still going on?

A. It is.

Q. Thank you very much.

(Conference between counsel. )

BY MR. HEINRICH:

Q. What was the jury verdict in that case?

A. I believe it was --

THE COURT: That -- it's irrelevant.

BY THE WITNESS:

A. -- a lot.

FURTHER RECROSS-EXAMINATION

BY MR. LEE:

Q. Dr. Conte, let me read you what the Court of Appeals said. "WARF's expert," that would be you, right?

A. Yes.

Q. "WARF's expert jumped to the conclusion that aliasing is extremely rare," testimony of Dr. Conte. "But in light of Dr. Conte's testimony, it is unreasonable to infer that the .1 percent statistic was referring to frequency of aliasing."

That's what the Court of Appeals said, correct?

A. I disagree with the Court.

Q. You disagree with the Court, but that is what they said.

A. They're discussing this claim term. They disagreed with how I was instructed to interpret the claim term.

Q. Did I read correctly what the Court of Appeals wrote in black and white?

A. Yes.

04:42 Q. Okay. Thank you.
04:43 THE COURT: Anything else for this gentleman?
04:43 MR. HEINRICH: No, Your Honor.
04:43 MR. LEE: Nothing, Your Honor.
04:43 THE COURT: May he be excused? Oh, is he going to be coming back? Are we going to see him again?
04:43 MR. HEINRICH: He'll be back in a rebuttal case.
04:43 THE COURT: Understood.
04:43 Doctor, you get a few more wonderful days in Waco. Who wouldn't want that?
04:43 (Laughter.)
04:43 THE COURT: So -- and I'm sorry for your dogs -- your absence from your dogs.
04:43 THE WITNESS: The boys are taking care of them, so...
04:43 THE COURT: Counsel, who will your next witness be for VLSI?
04:43 MR. WASHBURN: Professor Murali Annavaram.
04:43 THE COURT: Okay.
04:43 Ladies and gentlemen, let me tell you what I'm going to do. Suzanne's mad at me because she was all ready to swear him in.
04:43 Let me just tell you what we're going to do. I think I told you yesterday that I try and get witnesses to be completely done in one -- and not overnight.
04:43 What we're going to do is counsel's going to introduce

this gentleman to you and give you the same kind of background you heard with the prior witness, Dr. Conte, about his qualifications.

And then we're going to finish for the day and -- when they're done with that. And we'll resume with this gentleman -- are you a doctor?

With the good doctor tomorrow morning. So we'll will be done probably in the next few minutes, more or less.

(The witness was sworn.)

MR. WASHBURN: Your Honor, may I proceed?

THE COURT: Yes, sir. I'm sorry.

DIRECT EXAMINATION

BY MR. WASHBURN:

Q. Good afternoon, Professor Annavaram.

A. Good afternoon.

Q. Could you briefly introduce yourself for the jury?

A. Ladies and gentlemen, my name is Murali Annavaram. I am a professor at the University of Southern California.

Q. And what are you here to testify about today and tomorrow, Professor?

A. I'm going to discuss some of the work that I have done with regards to the power benefits and power analysis that I have done for the two infringing patents.

Q. Now, before we get to that, which I think will be tomorrow, let's talk a little bit about your background.

What do you do for a living?

A. I teach for a living. I am a faculty member, which means I teach both undergraduate level students as well as graduate level students.

And I have, at any one point in time, somewhere between six and eight Ph.D. students who work under me. And we do a lot of work on power management, power efficiency, reducing the power consumption of computer systems, and that's really the core of what I do.

Q. And, sir, have you received any awards for your work?

A. So a lot of the work that we do with my research group gets published at top-tier conferences where acceptance rates are extremely tight.

And for continuously publishing lots of papers in these conferences, I have been inducted into three different halls of fame, both from ACM, which is a big computing organization, Association of Computing Machinery, and IEEE, which is another agency -- or computing professional organization.

MR. WASHBURN: Your Honor, we offer Professor Murali Annavaram as an expert in computer testing.

MR. MUELLER: No objection.

THE COURT: Doctor, your time with us today is short. I appreciate you very much being here.

Ladies and gentlemen of the jury, if we start tomorrow at 9:00, will that work for everyone?

04:47 Very good. Remembering my instructions not to discuss the case amongst yourself, don't do any research about the case while you're out. Don't talk to anyone. Tell your family members that you had a lovely day but nothing more, that you're in front of a wonderful judge with a great sense of humor, something like that. In other words, you don't have to be truthful.

So -- but we will see you tomorrow at 9:00. If you could be here by 8:45, that would be wonderful.

And, Doctor, you'll be back at 9:00 tomorrow morning as well.

THE BAILIFF: All rise.

04:48 (Jury exited the courtroom at 4:47.)

THE COURT: You all may be seated.

Ladies and gentlemen, Suzanne tells me that the plaintiff has used -- I'm rounding up by one minute, but the plaintiff has used four hours and that the defendant has used two hours and 15 minutes, is what our -- what we show.

Is that what you all show?

MR. CHU: I don't know because I haven't been able to consult with the timekeepers on our side about today. I do know that there was a discrepancy yesterday, and I think a member of our team was going to speak with Suzanne and opposing counsel, and we were going to work that out. As far as --

THE COURT: Has that been done, Suzanne?

04:49 DEPUTY CLERK: Yes. For some reason the clock stopped, so I went back and verified the time and moved it forward.

04:49 THE COURT: We've done that, Mr. Chu.

04:49 MR. CHU: Okay. And then we'll thank you for sharing the Court's totals with us now, and then we'll check on that this evening.

04:49 THE COURT: While you're standing, is there anything that we need to take up on behalf of VLSI tonight?

04:49 MR. CHU: There is not. Thank you.

04:49 THE COURT: Mr. Lee?

04:49 MR. LEE: Not at this time, Your Honor.

04:49 THE COURT: Let me again, I'll probably do this every day, I hope I get to, compliment all the counsel who were at the podium today. I thought it was an exceptionally good day by both sides.

04:49 I thought -- I'm just amazed at how well you are -- not -- I'm not amazed because I didn't expect it. I'm amazed, I'd say, because you all are living up to my expectations, which were very high when we got here. So I very much appreciate everything that you all are doing and the fine lawyers.

04:50 Yes, sir, Mr. Lee?

04:50 MR. LEE: Your Honor, it did occur to me, they may rest tomorrow, and we wanted to ask what Your Honor's preference was for JMOL. Do you want us to do it orally at the end? Do you want us to just make the motion and then follow it up with a

written motion?

THE COURT: I think oral will be sufficient.

MR. LEE: Okay.

THE COURT: And, Mr. Chu, is that your sense? When we -- is Mr. -- I'm sorry. Is Dr. Sullivan going to be your last witness?

(Conference between counsel.)

MR. CHU: No. I don't think so, but I just need to check with my colleagues.

THE COURT: Who do we have tomorrow? We have the doctor I just saw tomorrow and then we have Dr. Sullivan. Who else do we have?

MR. CHU: Yes.

MR. HEINRICH: We're going to have the deposition plays.

THE COURT: Oh, okay.

(Conference between counsel.)

MR. HEINRICH: So at minimum we'll have the deposition plays that we discussed today because they're for sure getting teed up now.

THE COURT: May I make a suggestion to you all? But I don't care. I mean, it's -- y'all have done a million more trials than me. I would not finish by reading depositions.

(Laughter.)

THE COURT: I would do it somewhere -- anytime you want, tomorrow after the doctor or whenever you want. I would not

finish with deposition testimony, but it's entirely up to you. And the same is obviously true for Intel, however you do it. Here I'm trying to look out for the jury. So and --

Mr. Lee, anything else?

MR. LEE: Nothing, Your Honor. Thank you.

MR. CHU: Your Honor, I just want to say, we agree, I need to consult with and coordinate with my colleagues about exactly who are the live witnesses as well as the depositions and when we're going to play both. We'll get it all straightened out.

THE COURT: Well, here's what I'm taking away from this. Who will -- Mr. Lee, do you know who the first witness will -- you intend to call for Intel?

MR. LEE: Yes. It's Mr. King.

THE COURT: Okay. He should be ready to go tomorrow, but the same rules will apply. If we can't get him started and finished by the end of the day, he won't go. It would not be a bad thing to end with the plaintiff's case and start afresh the next day. But if we have a lot of time left, I'm --

I wind up talking about people like they're in the third person who are sitting here. I apologize for that. I know you're sitting here, but I generally talk to the lawyers about people who are sitting here.

So you should have your first witness ready to go, but we're not -- I'm not going to stay late tomorrow unless, Mr. Lee, with your other scheduling problems, you feel that

that would be best. I will -- I'll defer to you if you think staying, for example, tomorrow until 6:00 to get one witness completed, I'll do whatever you think is best for you so that we can get you done here. I understand your time conflict. So --

MR. LEE: Thank you, Your Honor.

THE COURT: -- since it's your witness, I'll let you make the decision on what to do there and I'll abide by it.

Mr. Chu, anything else?

MR. CHU: Nothing further, Your Honor. Thank you.

THE COURT: Have a good evening.

THE BAILIFF: All rise.

(Hearing adjourned at 4:53 p.m.)

UNITED STATES DISTRICT COURT )
WESTERN DISTRICT OF TEXAS )

I, Kristie M. Davis, Official Court Reporter for the United States District Court, Western District of Texas, do certify that the foregoing is a correct transcript from the record of proceedings in the above-entitled matter.

I certify that the transcript fees and format comply with those prescribed by the Court and Judicial Conference of the United States.

Certified to by me this 8th day of March 2021.

*/s/ Kristie M. Davis*

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